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# A Kit for Regulated Non-Municipal Drinking-Water System Owners (Drinking-Water Systems Regulation O. Reg. 170/03)

**July 2003**

Ontario

# A Kit for Regulated Non-Municipal Drinking-Water System Owners (Drinking-Water Systems Regulation O. Reg. 170/03)

Water Policy Branch
Ministry of the Environment

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# 1 INTRODUCTION TO THE KIT

The Drinking-Water Systems Regulation, Ontario Regulation 170/03, made under the *Safe Drinking Water Act, 2002* (SDWA), came into effect on **June 1, 2003**. It replaces Ontario Regulations 459/00 and 505/01 and extends its application to other drinking-water systems including small systems that serve drinking water to the public.

**Purpose of this Kit**

This kit is designed as a guidance tool to help owners and operators of regulated non-municipal drinking-water systems understand their responsibilities in delivering safe, clean drinking water.

There are eight categories of drinking-water systems that are regulated under the Drinking-Water Systems Regulation. This kit is designed to assist owners of systems in the following categories:

- Large Non-Municipal Non-Residential
- Small Non-Municipal Non-Residential
- Non-Municipal Seasonal Residential
- Non-Municipal Year-Round Residential

This kit is provided for information purposes only. This kit provides an overview of the Drinking-Water Systems Regulation (O. Reg. 170/03). Owners of drinking-water systems and any person affected by the Drinking-Water Systems Regulation are advised against using this document for compliance purposes – reference should always be made to the text of the Regulation and the *Safe Drinking Water Act* when trying to determine if a system complies with the Regulation. A copy of the SDWA and the regulations made thereunder may be obtained from Ontario's e-laws Web site at www.e-laws.gov.on.ca.

**Supporting Regulations and Procedures**

In order to support the Drinking-Water Systems Regulation, eight administrative regulations, four made under the *Safe Drinking Water Act* and four made under the *Ontario Water Resources Act* (OWRA), also came into effect on June 1, 2003.

The Drinking-Water Systems Regulation (O. Reg. 170/03) and supporting regulations are available on e-laws at www.e-laws.gov.on.ca.

**Under the *Safe Drinking Water Act:***

**Ontario Regulation 169/03 – Ontario Drinking-Water Quality Standards**

This Regulation establishes the enforceable drinking-water standards under the SDWA. In accordance with section 10 of the SDWA, if an act, regulation, order or by-law requires water to be potable, it must, at a minimum, meet the drinking-water quality standards. Subsection 11 (1) of the SDWA requires owners of municipal drinking-water systems and regulated non-municipal systems to provide water that meets the drinking-water quality standards to the point where the system connects to a user's plumbing system.

**Ontario Regulation 171/03 – Definitions of Words and Expressions Used in the Act**

This Regulation defines terms and expressions used in the SDWA that were left to regulations under the Act, such as the term "private residence." The Regulation also prescribes categories of non-municipal drinking-water systems as regulated systems for the purpose of various provisions of the Act where the term *"regulated non-municipal drinking-water system"* appears.

**Ontario Regulation 172/03 – Definition of "Deficiency" and "Municipal Drinking-Water System"**

This is a Minister's Regulation to define what a deficiency is with respect to a drinking-water system. This Regulation also prescribes certain non-municipal drinking-water systems to be municipal drinking-water systems for the purposes of the SDWA.

**Ontario Regulation 173/03 – Schools, Private Schools and Day Nurseries**

This Regulation sets requirements for weekly flushing for schools, private schools and day nurseries. *Please see **Chapter 4** for more information.*

**Under the *Ontario Water Resources Act:***

**Ontario Regulation 174/03 – Amends Ontario Regulation 525/98**

This Regulation provides an exemption to any waterworks that is a drinking-water system under the SDWA from the requirement to obtain an approval under section 52 of the OWRA.

**Ontario Regulation 175/03 – Revokes Ontario Regulation 459/00**

Ontario Regulation 459/00, Drinking Water Protection Regulation for Larger Water Works, applied to owners of municipal and non-municipal drinking-water systems that supplied 50,000 L/day and were capable of producing 250,000 L/day or that served more than five private residences. O. Reg. 175/03 also revokes related regulations, O. Reg. 506/01 and O. Reg. 213/02.

**Ontario Regulation 176/03 – Revokes Ontario Regulation 505/01**

Ontario Regulation 505/01, Drinking Water Protection Regulation for Smaller Water Works Serving Designated Facilities, applied to systems serving a designated facility.

**Ontario Regulation 177/03 – Amends Ontario Regulation 435/93**

This Regulation ensures that Regulation 435/93 will continue to apply to systems that require **certified operators** under the Drinking-Water Systems Regulation.

**Procedures Referenced in the Drinking-Water Systems Regulation**

The Drinking-Water Systems Regulation references two procedures. Both procedures will be discussed in this kit and copies of the procedures can be obtained through the Ministry of Environment's Web site at www.ene.gov.on.ca.

- The *"Procedure For Corrective Action for Systems Not Currently Using Chlorine"* is discussed in Chapters 2 and 3.
- The *"Procedure for Disinfection of Drinking Water in Ontario"* is discussed in Chapters 2 and 3.

**How This Kit Works**

This kit is designed to assist owners and operators of regulated non-municipal drinking-water systems to comply with the new Drinking-Water Systems Regulation. To make it easier for you to understand your responsibilities as a drinking-water system owner, three chapters in this kit are dedicated to describing the specific requirements by category of drinking-water system.

| | |
|---|---|
| Chapter 2 | Large Non-Municipal Non-Residential and Non-Municipal Year-Round Residential |
| Chapter 3 | Non-Municipal Seasonal Residential and Small Non-Municipal Non-Residential |
| Chapter 4 | Non-Municipal Systems Serving Designated Facilities |

The remaining chapters provide more information on the common requirements for all non-municipal systems and general information.

| | |
|---|---|
| Chapter 5 | contains instructions on how to apply for relief from requirements for provision of treatment equipment, should you choose to do so, and what you should include in your application to the Ministry of the Environment |
| Chapter 6 | provides information on when you should post a warning notice of potential problems and what the warning notice should look like |

| | |
|---|---|
| Chapter 7 | provides information for specific systems that have exemptions from the Regulation |
| Chapter 8 | provides a template for the Annual Report |
| Chapter 9 | provides a general overview of how to collect water samples |
| Chapter 10 | presents an easy-to-understand reference calendar showing you how often you must monitor your water quality and prepare records or reports |
| Chapter 11 | contains information on how to fill out the forms required by the Drinking-Water Systems Regulation |
| Chapter 12 | provides information on where to access the list of Accredited Labs in Ontario |
| Chapter 13 | list of Public Health Units in Ontario including contact information |
| Chapter 14 | information on operator training requirements and courses |
| Chapter 15 | provides you with the Ministry Web site URLs for more information on drinking-water protection and other issues |
| Chapter 16 | lists important contact information for the Ministry of the Environment and Interested Authorities |
| Chapter 17 | provides an overview of all the sections of the Drinking-Water Systems Regulation |
| Chapter 18 | contains a glossary to help you understand the terms used in the Drinking-Water Systems Regulation |

**How to Determine Your Category of Non-Municipal Drinking-Water System**

The Drinking-Water Systems Regulation sets the regulatory requirements by establishing 8 categories of drinking-water systems: 4 categories of municipal systems and 4 categories of non-municipal systems. It is therefore very important that you understand which category of non-municipal drinking-water system your system falls within. To make this process as easy as possible, this kit will walk you through a series of questions (see also **Diagram 1**) that will help determine your category of drinking-water system.

(1) **Does your non-municipal drinking-water system serve six or more private residences[1] or a trailer park/campground with six or more service connections?**

If yes, your system could fall within:

- Year-Round Residential
- Seasonal Residential

If no, your system could fall within:

- Large Non-Residential
- Small Non-Residential

(2) **If you answered yes to question one, does your system operate seasonally[2]?**

- If yes, your system is Seasonal Residential
- If no, your system is Year-Round Residential

(3) **If you answered no to question one, is your system capable of supplying drinking water at a rate of greater than 2.9 litres per second? (Refer to page 8, "How to Determine Whether Your Non-Residential Drinking-Water System Capability is Large or Small," to determine your system's capability.)**

- If yes, your system is a Large Non-Residential
- If no, your system may be a Small Non-Residential

(4) **If you answered no to question three, do you serve a designated facility or public facility (see next page for definition)?**

- If yes, your system is a Small Non-Residential
- If no, your system is not subject to the Regulation

[1] "Private Residence" is defined in O. Reg. 171/03 (see glossary at the end of this kit).

[2] A "seasonal system" as defined in O. Reg. 170/03 is (1) any system that will not be operated for at least 60 consecutive days during any 365-day period, or (2) does not operate for at least 60 consecutive days in every period that begins on April 1 in one year and ends on March 31 in the following year.

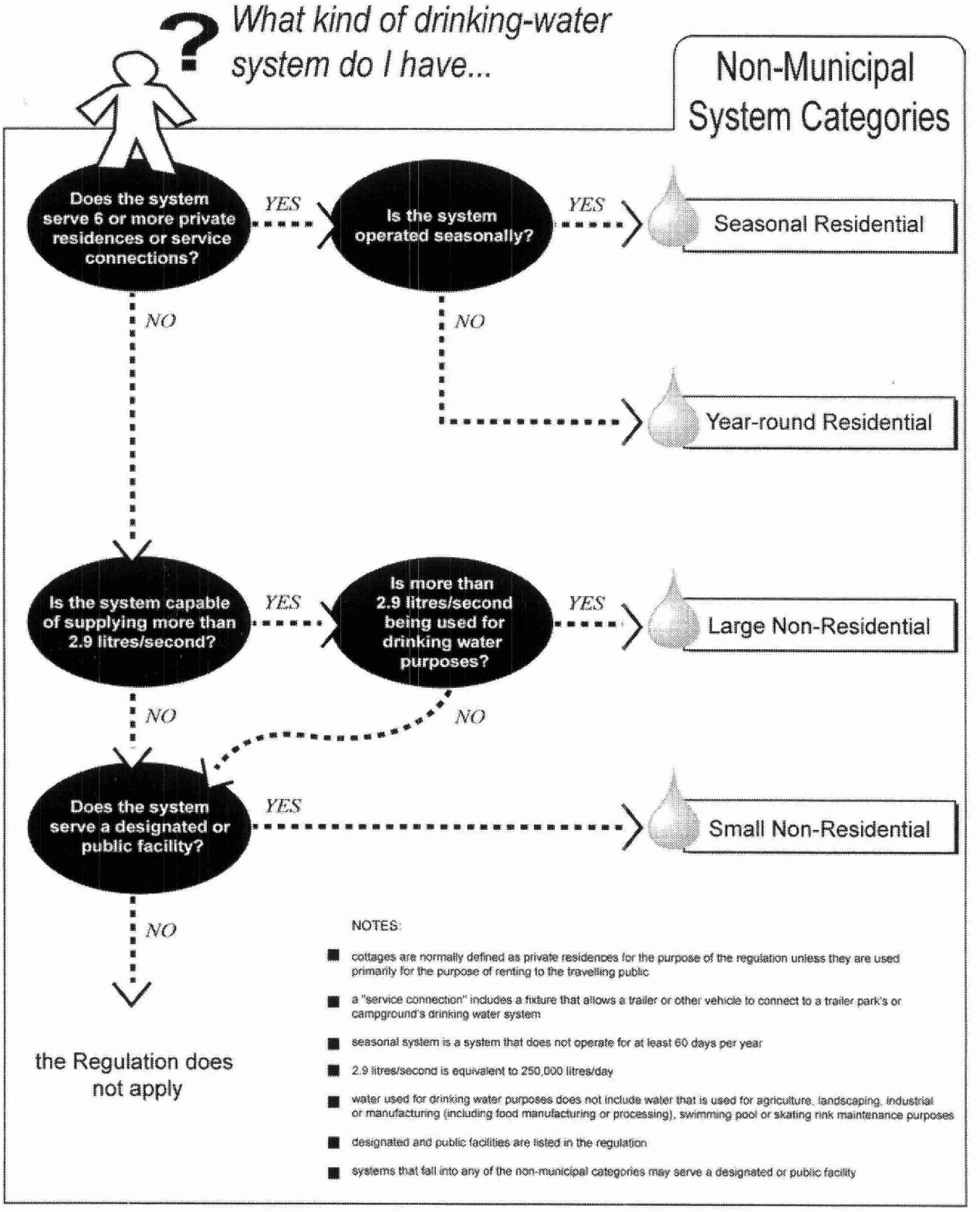
Regulation 170/03 defines a public facility to mean:

- food premises, as defined in the *Health Protection and Promotion Act*
- a place that operates primarily for the purpose of providing overnight accommodation to the travelling public
- a trailer park or campground
- a marina
- a church, mosque, synagogue, temple or other place of worship
- a recreational camp
- a recreational or athletic facility
- a place, other than a private residence, where a service club or fraternal organization meets on a regular basis or
- any place where the general public has access to a washroom, drinking water fountain or shower

Regulation 170/03 defines a designated facility to mean:

- children's camp
- a delivery agent care facility
- a health care facility
- a school or private school
- a social care facility
- a university, a college of applied arts and technology, or an institution with authority to grant degrees

## DIAGRAM 1. OVERVIEW OF THE CATEGORIES OF REGULATED NON-MUNICIPAL DRINKING-WATER SYSTEMS



## How to Determine Whether Your Non-Residential Drinking-Water System Capability is Large or Small

In order to know whether your system falls into the Large Non-Residential category or the Small Non-Residential category, you need to know if the rate at which your system is capable of supplying drinking water is more than 2.9 litres per second (250,000 litres per day).

### Water not used for drinking purposes

If your system supplies water through dedicated lines for the following operations, and the dedicated lines supply water exclusively to such operations, the water used for these operations does not have to be included in determining the system's water supply capability. For example, with a system serving a golf course where water is used for the club house building, landscaping, and several drinking fountains, when determining system capability, you do not have to include the water supplied through dedicated lines that is used exclusively for landscaping. This would occur after the branch in lines where water is used for shared purposes.

- agricultural operations;
- landscaping operations;
- industrial or manufacturing operations, including food manufacturing or processing operations; and
- swimming pool or skating rink maintenance operations.

If your system supplies water for these operations, and you do not want water used for these operations to be included as part of the category determination, you must calculate the sum of the average rates, expressed in litres per second, at which your system supplied water in the preceding calendar year to the lines which exclusively supply such operations. This can be done using measured flow rates, engineer's calculations, or other methods of estimation. If you have a new system that has not yet been in operation for a year, you can provide a reasonable estimate of what the result would be, rather than an actual figure or calculation.

### Determining System Category Without Using Engineer's Calculations

Once you have accounted for water flows through dedicated lines to these non-drinking operations, the maximum rate, expressed in litres per second, at which your system can supply drinking water can be determined through an engineer's calculation as described in **Box 1**. However, it may not be necessary to carry out this calculation if the following steps are followed:

Step 1 — Determine nominal pump capacity from pump plate or documentation
- hire a certified well contractor or plumber if necessary

Step 2 — If nominal pump capacity is less than or equal to 2.9 litres per second then your system falls into the Small Non-Residential category.

Step 3 — If nominal pump capacity is greater than 2.9 litres per second, but the pump capacity **minus** the average water flow rates through the dedicated non-drinking water supply lines is less than 2.9 litres per second, then your system falls into the Small Non-Residential category

Step 4 — If nominal pump capacity **minus** the average water flow rates through the dedicated non-drinking water supply lines is greater or equal to 2.9 litres per second, your system is considered to fall into the Large Non-Residential category unless an engineer's calculation described in **Box 1** is carried out and concludes otherwise.

**BOX 1. DETERMINING THE FLOW RATE CAPABILITY OF A DRINKING-WATER SYSTEM – ENGINEER'S CALCULATION**

The flow rate capability of a water works is the maximum instantaneous flow rate that may be achieved under normal operating conditions at any location within the drinking-water system (water supply and distribution system). So this rate is not necessarily the flow rate capability of the well pump; if the system has an underground reservoir and high lift pump(s), it is the (combined) flow rate capability of the high lift pump(s).

The nominal pump capacity (normally shown on the pump's plate) is not the flow rate capability of the pump installed as part of a drinking-water system. For the purpose of determining the flow rate capability of a drinking-water system, the pump rating has to consider the operating head against which the pump has to operate.

Ministry of the Environment design guidelines state that the minimum water system distribution pressure should be 40 psi except under a fire flow condition where it could drop to 20 psi.

Where an in-situ pump output test is conducted for a centrifugal pump (e.g., a high lift pump in a reservoir), the pump test should be done in pump "flooded suction" conditions (i.e., the level of water on the suction side of the pump should come up to at least the centerline of the pump impeller). Centrifugal pumps do not operate on anything less.

For in-situ output tests of submersible well pumps, the 40 psi minimum operating head is to be measured from the discharge piping or header in the well pump house (not the static level of water in the well).

If the pump test is conducted using a flow meter and a pressure gauge, this equipment should be calibrated prior to the test. Flow measuring devices are to be calibrated at regular intervals not exceeding one year to ensure that accuracy is within plus or minus 5% of actual rate of the flow within the range of 10% to 100% of full scale reading of the measuring devices.

**NOTE:** The flow rate capability of the system must be expressed as a maximum rate, in litres per second. The sum of the average rates, also expressed in litres per second, at which the drinking-water system supplied drinking water in the preceding calendar year to the distribution lines that supply water exclusively for operations other than for drinking purposes (as described) should be subtracted from the overall maximum flow rate capability of the system, in order to determine if the system is a "Large" or "Small" Non-Residential system for the purposes of the Regulation.

## How to Determine if Your Ground Water System is Under the Direct Influence of Surface Water (GUDI)

Your regulatory requirements depend on your water source. The Regulation deems specific types of ground water systems to have a raw water supply that is under the direct influence of surface water. These systems are called GUDI systems. The Regulation treats a GUDI system as a surface water system, which means that GUDI systems are subject to the same requirements as surface water systems.

If you are not sure, please review the table below.

If your system is deemed to be a GUDI under the Regulation, follow the regulatory requirements for surface water drinking-water systems. If you system is not deemed to be a GUDI, follow the regulatory requirements for ground water systems.

**Drinking-Water Systems that Obtain Water from Ground Water Under the Direct Influence of Surface Water (GUDI)**
**(SECTION 2 OF THE DRINKING-WATER SYSTEMS REGULATION)**

1. A drinking-water system that obtains water from a well that is not a drilled well or from a well that does not have a watertight casing that extends to a depth of at least 6 metres below ground level.
2. A drinking-water system that obtains water from an infiltration gallery.
3. A drinking-water system that is not capable of supplying water at a rate of 0.58 litres per second and that obtains water from a well, any part of which is within 15 metres of surface water.
4. A drinking-water system that is capable of supplying water at a rate of 0.58 litres per second and that obtains water from an overburden well, any part of which is within 100 metres of surface water.
5. A drinking-water system that is capable of supplying water at a rate of 0.58 litres per second and that obtains water from a bedrock well, any part of which is within 500 metres of surface water.
6. A drinking-water system has been contaminated by surface water.
7. A drinking-water system for which a written report has been prepared by a professional engineer or professional hydrogeologist that concludes that the system's raw water supply is ground water under the direct influence of surface water and that includes a statement of his or her reasons for reaching that conclusion.

**NOTE:** If a written report has been prepared by a professional engineer or professional hydrogeologist that concludes that your system's ground water supply is not under the direct influence of surface water and includes a statement of his or her reasons for reaching that conclusion, the above deeming rules do not apply to your system.

Hopefully you now have a better idea of which category of drinking-water system you fall within. In order to provide more clarification for you, the following table describes the four non-municipal categories of drinking-water systems with examples for each.

## TABLE 1: SUMMARY OF 4 CATEGORIES OF REGULATED NON-MUNICIPAL DRINKING-WATER SYSTEMS

| CATEGORY OF SYSTEM | DESCRIPTION |
|---|---|
| **Small Non-Residential** | ♦ Defined in the Regulation as a drinking-water system that does not serve six or more private residences but serves for example, a hotel, resort, restaurant, gas station, church, campground, a designated facility or other public facility, and the system is not capable of supplying drinking water at a rate greater than 2.9 litres per second. |
| **Large Non-Residential** | ♦ Defined in the Regulation as a drinking-water system that does not serve six or more private residences but serves for example, an industrial facility, hotel, resort, trailer park or campground with 5 or fewer service connections, or a large designated facility and the system is capable of supplying drinking water at a rate greater than 2.9 litres per second. |
| **Year-Round Residential** | ♦ Defined in the Regulation as a drinking-water system that serves six or more private residences, or a trailer park or campground with 6 or more service connections, and the system is not a seasonal system. For example, a system in this category may serve an apartment, a private subdivision, a condominium or townhouse complex, a mobile home park, a year-round cottage development, or a year-round trailer park or campground with 6 or more service connections. |
| **Seasonal Residential** | ♦ Defined in the Regulation as a drinking-water system that serves six or more private residences, or a trailer park or campground with 6 or more service connections, and the system is a seasonal system. For example, a system in this category would shut down seasonally and may serve a cottage development, or a trailer park or campground with 6 or more service connections. |

**NOTES:**

- Cottages are normally defined as private residences for the purposes of the Regulation, unless they are used primarily for the purpose of renting to the travelling public
- Seasonal operation is defined in the Regulation
- 2.9 Litres/second is equivalent to 250,000 Litres/day
- Water used for drinking-water purposes does not include water that is used for agriculture, landscaping, industrial or manufacturing operations (including food manufacturing or processing), and swimming pool or skating rink maintenance purposes
- Designated and public facilities are listed in the Regulation. Systems that fall into any of the above categories may also serve a designated or public facility.

# 2 SPECIFIC REQUIREMENTS FOR NON-MUNICIPAL YEAR-ROUND RESIDENTIAL AND LARGE NON-RESIDENTIAL DRINKING-WATER SYSTEMS

There are a number of requirements that you must meet to comply with the Regulation. To assist you in understanding your full range of responsibilities as a drinking-water system owner, this portion of the kit explains each of the regulatory requirements that apply to you.

**NOTE:** This section is for guidance only. For a complete understanding of your responsibilities as a drinking-water system owner you must refer directly to the Regulation.

Below is a summary of the specific requirements for Year-Round Residential and Large Non-Residential drinking-water systems that will be discussed in this chapter.

| REQUIREMENTS | PAGE # IN KIT | SECTION(S) IN REGULATION |
|---|---|---|
| **A. Engineering Evaluation Report and Written Notice** | 13 | Schedule 21 |
| **B. Certified Operator** | 15 | Section 1, Schedule 2, Schedule 6 & Schedule 8 |
| **C. Provision of Treatment Equipment** | 15 | Schedule 2 |
| **D. Operational Checks, Sampling and Testing – General** | 20 | Schedule 6 |
| **E. Selecting a Laboratory to Analyze your Drinking-Water Samples** | 25 | Schedule 6 |
| **F. Notifying Authorities of Adverse Test Results and Other Problems** | 27 | Schedule 16 |
| **G. Corrective Action** | 27 | Schedule 18 |
| **H. Warning Notices of Potential Problems** | 30 | Schedule 19 |
| **I. Making Required Information Available** | 30 | Section 12 |
| **J. Submitting an Annual Report** | 30 | Section 11 |
| **K. Retaining Required Reports and Documents** | 31 | Section 13 |
| **L. Required Forms** | 32 | Section 14 |

## A. Engineering Evaluation Report and Written Notice (Regulation, schedule 21)

As a **Year-Round Residential** or **Large Non-Residential** drinking-water system owner, you must ensure that a professional engineer prepares and submits to you an **engineering evaluation report**. The engineer must also submit a notice to the Director once the report has been completed. The report must certify that the professional engineer has visited your drinking-water system and include the engineer's opinion that all equipment needed to comply with treatment requirements (Schedule 2) is being provided, and that all equipment required in order to ensure compliance with operational checks (Schedules 6 and 8) is being provided. The notice to be submitted to the Director must also include a copy of the opinion by the engineer that the equipment is being provided. These requirements replace the requirement under the *Ontario Water Resources Act* to obtain a certificate of approval.

### (1) Engineering Evaluation Report

You must ensure that the professional engineer that prepares the **engineering evaluation report** has experience in sanitary engineering.

### Contents of Engineering Evaluation Reports

As a minimum, in order to comply with schedule 21 of the Regulation, each report must:

1. Specify the category of drinking-water system for the purposes of the Regulation
2. Include the opinion of the engineer that all equipment has been provided in compliance with schedules 2, 6, and 8 is being provided
3. Set out the engineer's reasons for the opinion along with the technical and other information he or she relied on in reaching that opinion
4. Include a maintenance schedule that sets out requirements relating to the frequency at which the equipment must be inspected, tested and replaced

A sample of a maintenance schedule for a system using ultraviolet light disinfection equipment is included below:

**Sample Maintenance Schedule for UV Disinfection Equipment**

| Task | Frequency |
|---|---|
| Ballasts inspection | 3-6 months |
| Ballasts replacement | Every 5 years |
| Chemical cleaning | Monthly |
| Lamp replacement | 5000 hours (7 months) to 8000 hours (11 months) |
| Mechanical wiper maintenance | Yearly |
| Sensor calibration | Weekly to monthly |
| Sensor replacement | Yearly |
| Sleeve inspection | Yearly |
| Sleeve replacement | 3-5 years |

**When is your Engineering Evaluation Report Due?**

If your drinking-water system began operating on or after June 1, 2003, you must ensure that a professional engineer submits to you an Engineering Evaluation Report **within 30 days** of your new drinking-water system beginning operation.

If your drinking-water system began operating before June 1, 2003, you must ensure that a professional engineer submits to you an Engineering Evaluation Report **within 30 days** after the date by which you are required to provide treatment equipment (Schedule 2 of the Regulation) for your drinking-water system.

If you alter your drinking-water system ("alteration" is a defined term in the SDWA and does not include repairs), then you must ensure that a professional engineer submits to you an Engineering Evaluation Report **within 30 days** of commencing operation of the altered system.

### (2) Written Notice

Within 7 days after the engineering evaluation report is required to be prepared, you must submit a written notice to the MOE Director using an approved form (see **Chapter 11**) regarding the engineering evaluation report and include a copy of the engineer's opinion regarding your drinking-water system's compliance.

### Exemptions

- If you have already prepared and submitted to the MOE Director an engineering evaluation report under Regulation 505/01, you are exempt from preparing an engineering evaluation report and submitting a written notice to the MOE Director.
- If you have been granted an approval after August 1, 2000, under section 52 of the *Ontario Water Resources Act* (Certificate of Approval) after August 1, 2000, you are exempt from preparing an engineering evaluation report and submitting a written notice to the MOE Director.
- However, if you have been granted an approval under *Ontario Water Resources Act* after August 1, 2000, you must have an engineer prepare a statement certifying that she or he has visited the system and that equipment required by Schedules 2, 6 and 8 of the Regulation is being provided (see Schedule 21 for more details). The Regulation provides that the *Ontario Water Resources Act* approval is revoked on the date the owner submits this statement to the Director, which means the drinking-water system will no longer be subject to the requirements of the *Ontario Water Resources Act* approval – and will instead be regulated by the Drinking-Water Systems Regulation under the *Safe Drinking Water Act*.

### Relief from Requirements for Provision of Treatment Equipment

- If you have been granted relief, under O. Reg. 170/03, by the MOE Director from complying with all requirements to provide treatment equipment you are exempt from preparing an engineering evaluation report and submitting a written notice to the MOE Director.

**Frequency of Subsequent Engineering Evaluation Reports**

As a drinking-water system owner, you must also ensure that a professional engineer prepares and submits to you Engineering Evaluation Reports **not later than**:

- **5 years** from the date your last Engineering Evaluation Report was prepared or required to be prepared (the earlier of the two) if your drinking-water system obtains water from a surface water source.
- **10 years** from the date your last Engineering Evaluation Report was prepared or required to be prepared (the earlier of the two) if your drinking-water system obtains water from a ground water source.

Notices are also required to be submitted to the Ministry at these times.

### B. Certified Operator (Regulation, section 1 and Schedules 2, 6 and 8)

A "**certified operator**" must carry out the following required activities:

- perform any necessary adjustments to the water treatment equipment; and
- conduct all required operational checks.

The Drinking-Water Systems Regulation defines "**certified operator**" as:

a) a person who holds an operator-in-training licence or any class of water treatment facility or water distribution facility operator's licence under section 6 or 8 of Ontario Regulation 435/93 (Water Works and Sewage Works),

b) a person who holds a water treatment facility or water distribution facility conditional operator's licence issued under section 6.1 of Ontario Regulation 435/93, or

c) a person who has qualifications that, in the opinion of the Director, are equivalent to the qualifications required for a licence referred to in clause (a).

**Note:** Requirements to have a **certified operator** take effect once the drinking-water system complies with the treatment equipment requirements. A **water quality analyst** may also be used to carry out certain required operational tests.

More information on the licensing requirements can be found in the Ontario Environmental Training Consortium's Program Guide at www.oetc.on.ca or by calling the Operator Certification Office at (905) 796-2851.

### C. Provision of Treatment Equipment (Regulation, schedule 2)

As a drinking-water system owner, you must treat your water by the date specified in the Regulation for your system's category, unless you are eligible for exemptions from the treatment

equipment requirements. To meet the Drinking-Water Systems Regulation's mandatory treatment requirements, you must, at the very least, ensure that:

- wells are constructed and maintained to prevent surface water and other foreign materials from entering them;
- appropriate water treatment equipment is provided;
- water treatment equipment is operating whenever water is being supplied;
- if secondary disinfection is required, the water treatment equipment that provides secondary disinfection produces at all times in the distribution system:
  - a free chlorine residual of at least 0.05 mg/L, if your drinking-water system provides chlorination; or
  - a combined chlorine residual of at least 0.25 mg/L, if your drinking-water system provides chloramination;
- water treatment equipment is operated as outlined in the Ministry's *"Procedure for Disinfection of Drinking Water in Ontario";*
- water treatment equipment is operated such that it achieves the design capabilities it is required to have;
- water treatment equipment is properly maintained;
- written operating instructions for the water treatment are kept near the equipment;
- adequate supplies of chemicals (or other materials necessary for operating the water treatment equipment) are:
  a) clearly marked;
  b) kept nearby the equipment;
  c) separated from other chemicals and materials that are not used for the water treatment or distribution system; and
- replacement parts (for those parts that need to be replaced periodically) are kept nearby.

**Ground Water Supplies**

Primary Disinfection

If your drinking-water system uses a ground water source, you must ensure that you provide water treatment equipment that:

- is designed to be capable of achieving, at all times, primary disinfection in accordance with the Ministry's *"Procedure for Disinfection of Drinking Water in Ontario,"* including at least 99% removal or inactivation of viruses.

**Surface Water Supplies**

Filtration and Primary Disinfection

If your drinking-water system uses a surface water source (or a GUDI source), you must ensure that you provide water treatment equipment that:

- is designed to be capable of achieving, at all times, filtration and primary disinfection in accordance with the Ministry's *"Procedure for Disinfection of Drinking Water in Ontario"* including removal or inactivation of at least **99%** of *Cryptosporidium* oocysts, **99.9%** of *Giardia* cysts, and **99.99%** of viruses.

If you are using UV or other non-chlorine based primary disinfection equipment, you must ensure that the equipment has a feature that causes an alarm to sound in the building where the disinfection equipment is located, at a location where a person is present, if a person is not always present at the building where the disinfection equipment is located and in any designated facilities served by the system when:

- equipment malfunctions;
- equipment loses power; or
- the disinfection equipment is not providing the appropriate level of disinfection.

**If an alarm sounds, a "certified operator" must be dispatched to take appropriate action and must arrive at the building where the disinfection equipment is located as soon as possible.**

### Secondary Disinfection

Unless the "Note" below applies to your system, you must ensure that you provide water treatment equipment that:

- is designed to be capable of secondary disinfection using chlorination or chloramination in accordance with the Ministry's *"Procedure for Disinfection of Drinking Water in Ontario"*; and
- that is designed to be capable of achieving at all locations within the distribution system:
  - a free chlorine residual of 0.2 mg/L (if chlorinating)
  - a combined chlorine residual of 1.0 mg/L (if chloraminating)

**NOTE:** If you provide primary disinfection (ground water) or filtration and primary disinfection (surface water) and all of your distribution system or plumbing after treatment is enclosed in a building or protective structure, you do not have to provide secondary disinfection.

**Point of Entry Treatment Units (large non-residential only)**

Point of entry treatment units can be used for the purpose of meeting the treatment requirements of the Regulation. If you are considering using a point of entry approach to provide disinfection for your drinking-water system, please refer to the specific requirements in the Regulation related to using point of entry units. Systems that use point of entry units in accordance with the Regulation do not have to provide secondary disinfection.

### Appropriate Water Treatment Equipment

You have the flexibility to select any treatment technology that meets the performance-based criteria established in Schedule 2 of the Drinking-Water Systems Regulation. Primary disinfection of water in a drinking-water system is usually accomplished with chlorine, but UV irradiation, ozone or other method of disinfection may be acceptable if it meets the performance criteria.

### Written Notice of Your Intentions Regarding Treatment Equipment (Schedule 2)

Unless the "Note" below applies to your system, you must submit a written notice to the MOE Director on an approved form (see **Chapter 11**) by **July 1, 2004** that includes one of the following three declarations:

1. You intend to comply with the requirements for treatment equipment by the specified deadline

**OR**

2. You intend to make an application for relief from some or all of the requirements for provision of treatment equipment

**OR**

3. You intend to post warning notices and take the other steps necessary to obtain the exemption provided by section 8 of the Regulation. A large non-residential or year-round residential system is only eligible to post warning notices under section 8 if it does not use electricity and does not serve any building or other structure that uses electricity (see **Chapter 7** for more details).

Note: If you have already notified MOE of the completion of the Engineering Evaluation Report or submitted an application for relief from the requirements for provision of treatment equipment by July 1, 2004, then you do not need to submit this notice. The requirement to submit written notices of intention also does not apply to systems serving designated facilities. These systems must have the required treatment equipment already in place by the time the notices are due.

### Relief from Requirements for Provision of Treatment Equipment

If your drinking-water system only has a raw water supply that is ground water, you may apply for relief from all treatment requirements. See **Chapter 5** for the regulatory requirements and for information on how to apply for relief from all treatment requirements.

**NOTE:** If you are not granted relief by the MOE Director you must comply with requirements for provision of treatment equipment by the specified deadline.

**Deadlines For Providing Treatment Equipment**

| | DEADLINES |
|---|---|
| If your drinking-water system was operating before the Regulation came into effect (June 1, 2003) | ♦ **July 1, 2004** (if your drinking-water system obtains water from a surface water source)<br>♦ **December 31, 2005** (if your drinking-water system obtains water from a ground water source) |
| Serves a designated facility other than a school | **July 1, 2003** |
| Serves a designated facility (children's camp or non-commercial seniors' residence) | **July 1, 2004** |

**NOTE:** Compliance dates specified in an existing OWRA approvals or orders in relation to a requirement to install treatment equipment take precedence over the compliance dates in the Regulation.

**EXEMPTIONS FROM PROVIDING TREATMENT, TESTING, ETC. (section 8)**

If your drinking-water system does not use electricity, you may be exempted from regulatory requirements according to section 8, if:

1. You post appropriate warning notices.
2. You check your warning notices once a week to make sure they are in compliance with O. Reg. 170/03.
3. You disconnect all drinking water fountains to render them inoperable.
4. You provide written notice to the Ministry of the Environment Director using an approved form (see **Chapter 11**) that the above steps have been taken.

For more information on section 8 exemptions, see **Chapter 7**.

**OTHER EXEMPTIONS**

**Exemptions for Residential Systems (section 5)**

If you own a residential system that obtains all its water from a drinking-water system that is subject to O. Reg. 170/03, and that provides secondary disinfection in accordance with the Regulation, and the owner of the system providing the water has agreed in writing to ensure that 1) the secondary disinfection equipment is operated so that at all times and at all locations within your distribution system the required free or combined chlorine residual is maintained (whichever applies), and 2) to sample and test the water in the distribution system of the system that obtains the water as if it were part of the distribution system of the system providing the water, you are exempt from most of the requirements of O. Reg. 170/03. If you do not have such an agreement, certain sampling and monitoring activities of the water in your distribution system still apply to you as the owner of that system. Refer to section 5 of the Regulation for more details about these requirements.

**Exemptions for Non-Residential Systems (section 6)**

If you own a non-residential system that is connected to and receives water from a drinking-water system that is subject to O. Reg. 170/03, and that provides secondary disinfection in accordance with the Regulation, and the owner of the system providing the water has agreed in writing to ensure that 1) the secondary disinfection equipment is operated so that at all times and at all locations within your distribution system the required free or combined chlorine residual is maintained (whichever applies), and 2) to sample and test the water in the distribution system of the system that obtains the water as if it were part of the distribution system of the system providing the water, you are exempt from most of the requirements of

**OTHER EXEMPTIONS**

O. Reg. 170/03. Refer to section 6 of the Regulation for more details about these requirements.

**NOTE:** A network of pipes that is located on a single property and that is connected to a regulated drinking-water system is not considered to be a drinking-water system to which O. Reg. 170/03 applies. To be considered as a connected drinking-water system to which section 5 or 6 exemptions from regulatory requirements apply, the network of pipes that receives water from the regulated system would have to be located on more than one property.

**Exemptions for Non-Residential Systems Receiving Transported Water (section 7)**

If you own a non-residential system that receives transported water from a drinking-water system that is subject to O. Reg. 170/03, and that provides secondary disinfection in accordance with the Regulation, you are exempt from most requirements of the regulation but still have to monitor chlorine residual in your system on any day in which a designated or public facility is open. Note that if your system provides disinfection equipment for primary disinfection that does not use chlorination or chloramination, you do not have to monitor chlorine residual if your disinfection equipment is properly alarmed. Refer to section 7 of the Regulation for more details about these requirements.

## D. OPERATIONAL CHECKS, SAMPLING AND TESTING – GENERAL (Regulation, schedules 6-15)

### Operational Checks (Schedule 8)

- You must ensure that a **certified operator** performs a regular operational check to ensure that all water treatment equipment is properly functioning (**as specified in the maintenance schedule of the Engineer's Evaluation Report** – see "Sample Maintenance Schedule for UV Disinfection Equipment" below).
- You must record the date and time of the operational check, the name of the person who performed the operational check, and the results of the operational check.
- You must ensure that a **certified operator** or **water quality analyst** samples and tests your water for turbidity, and free residual chlorine or combined chlorine residual, if applicable. See below for details.
- Operational checks for turbidity and chlorine residual should be conducted on-site. They cannot be sent to a laboratory for analysis unless the laboratory is located nearby.
    - When checking chlorine residual, an electronic direct readout colourimetric or amperometric chlorine analyzer must be used or another device that a professional engineer has certified in writing is equivalent or better than those devices, having regard to the device's accuracy, reliability and ease of use. See Schedule 6 of the Regulation.
    - Whenever a sample is taken and tested as part of an operational check performed in accordance with Schedule 8, the person taking the sample must record the date and time the sample was taken, the location the sample was taken and the person's name.

In addition, the record should include the date and time the sample was tested and the results of the tests (and the name of the person who conducted the test, if this is a different person from the person who took the sample). See Schedule 6 of the Regulation.

NOTE: A **water quality analyst** may also be used to carry out certain required operational tests. A person other than a **certified operator** or **water quality analyst** is permitted to perform operational checks until the equipment required to ensure compliance with Schedule 2 of the Regulation commences operation.

NOTE: If your drinking-water system is not operating for 60 or more consecutive days or if for such a period the system supplies water only to the private residences that are occupied by the owner of the system, members of the owner's family, employees or agents of the owner of the system or their families, you are not required to perform operational checks on days during that period.

**Sample Maintenance Schedule for UV Disinfection Equipment**

| TASK | FREQUENCY |
|---|---|
| Ballasts inspection | 3-6 months |
| Ballasts replacement | Every 5 years |
| Chemical cleaning | Monthly |
| Lamp replacement | 5000 hours (7 months) to 8000 hours (11 months) |
| Mechanical wiper maintenance | Yearly |
| Sensor calibration | Weekly to monthly |
| Sensor replacement | Yearly |
| Sleeve inspection | Yearly |
| Sleeve replacement | 3-5 years |

**Turbidity**

Surface Water Using Filtration

If continuous monitoring equipment is required on filtration equipment to comply with the treatment performance requirements of Schedule 2, you must ensure that sampling and testing for turbidity is conducted by continuous monitoring equipment on each filter effluent line.

If continuous monitoring equipment is not required, then you must ensure that a daily water sample is taken on each filter effluent line and tested for turbidity.

Other

At least one sample per month shall be taken and tested for turbidity before the raw water enters the treatment system.

When testing for turbidity, a turbidity meter that measures turbidity in Nephelometric Turbidity Units (NTUs) must be used. See Schedule 6 of the Regulation.

**Chlorine Residual**

Primary Disinfection – Chlorination
Sample shall be taken at least once per day and tested for free chlorine residual in the treatment process at the end of contact time as required in the Ministry's *"Procedure for Disinfection of Drinking Water in Ontario."*

Secondary Disinfection – Chlorinating or Chloramination
Where a system serves more than one building and secondary disinfection is provided, samples shall be taken from the distribution system, at least once every day and tested for free chlorine residual or combined chlorine residual.

**NOTE:** Every time a water sample is collected for microbiological testing, a measurement of free chlorine residual (where chlorination is provided) or combined chlorine residual (where chloramination is provided) must be conducted at the same time and at the same location. This measurement of chlorine residual taken with a microbiological sample can satisfy a daily requirement to test for chlorine residual under the Regulation.

**Exception for Large Non-Residential Systems**

Large non-residential systems are not required to perform operational checks on days when all designated facilities and public facilities served by the drinking-water system are not open.

Section 3 of the Drinking-Water Systems Regulation states:

- A school or private school is open on a day if, at any time during that day, programs for children under 18 years of age are held at the school or private school.
- A designated facility, other than a school or private school, is open on a day if, at any time during that day, any of the persons that the facility serves, cares for or provides programming for are present at the facility.
- A public facility is open on a day unless persons served by the facility are denied access to the facility during the entire day.
- A place that is both a designated facility and a public facility is open on a day when either the designated facility or the public facility is open.

**Chemical and Microbiological Sampling and Testing**

- You do not need a **certified operator** at your water works to collect samples of your water for microbiological or chemical testing.
- You must record the date and time the sample was taken, the location where the sample was taken, and the name of the person who took the sample. See Schedule 6 of the Regulation.
- You must ensure that an accredited lab performs the analytical tests for microbiological and chemical parameters. How often the samples have to be collected, and from where, depends on the type of test being performed. Laboratories will advise you on proper techniques for sample collection, storage and preservation, and may supply the appropriate containers. You must refrigerate or otherwise cool samples for microbiological parameters until they are delivered to the lab.

**Tables 1a and 1b** outline the sampling and analysis requirements that you, as a drinking-water system owner, must ensure are met. For more details, refer to schedules 11 and 13 of the Drinking-Water Systems Regulation.

**NOTE:** Children's camps are required to have begun microbiological testing by June 1, 2003 (following the frequencies prescribed in the Regulation) and must also take and submit chemical samples for nitrate and nitrite and THMs by September 1, 2003 and all other chemical samples by June 1, 2004.

*The way you collect water samples could affect the accuracy of your test results!*
See **Chapter 9** in this Kit for step-by-step instructions on how to properly collect water samples.

**TABLE 1a. MICROBIOLOGICAL SAMPLING AND TESTING REQUIREMENTS FOR YEAR-ROUND RESIDENTIAL AND LARGE NON-RESIDENTIAL (SCHEDULE 11)**

| | MICROBIOLOGICAL PARAMETERS |
|---|---|
| **How often to collect samples (at least)** | For distribution samples:<br>♦ Twice a week if not chlorinating[3] or chloraminating<br>♦ Once every week if chlorinating[3] or chloraminating<br>AND<br>For raw water samples:<br>♦ Once a month |
| **Specific parameters to measure** | ♦ Total coliforms<br>♦ *E. Coli* or fecal coliforms<br>♦ HPC (only in distribution samples) |
| **Where to collect samples** | For distribution samples:<br>♦ From the distribution system or plumbing<br>AND<br>For raw water samples:<br>♦ From the raw water source (and if using ground water, then from each well) |
| **Who performs analysis for parameters** | ♦ A lab accredited for testing the parameter |

[3] If, for a period of 24 consecutive months, the presence of *E. Coli*, fecal coliforms, or total coliforms are confirmed in drinking-water samples on no more than one occasion (as described in Schedule 1 of the Drinking-Water Quality Standards Regulation O. Reg. 169/03), then the sampling frequency may be reduced to: once every week if not chlorinating or not chloraminating, or once every two weeks if chlorinating or chloraminating. However, if, on any two or more occasions drinking-water samples confirm the presence of *E. Coli*, fecal coliforms, or total coliforms in a 24-month period (see Schedule 1 of the Drinking-Water Quality Standards Regulation O. Reg. 169/03), then you must immediately return to the original sampling frequency as described in this table. A written notice of the intention to reduce testing frequencies must also have been given to the Director at least 7 days before the reductions come into effect (refer to the Ministry's Web site at www.ene.gov.on.ca for the approved form).

| | MICROBIOLOGICAL PARAMETERS |
|---|---|
| **By what date first samples must be taken** | ♦ June 1, 2003<br>♦ Within one week of commencing operation of new system where chlorine is not used.<br>♦ Within two weeks of commencing operation of new system where chlorine is used. |

**NOTE:** If your drinking-water system is not in operation for 7 days or more, or if for such a period the system supplies water only to the private residences that are occupied by the owner of the system, members of the owner's family, employees or agents of the owner of the system or their families, you are not required to perform microbiological sampling and testing during that period. However, upon restarting your system you must sample and receive the results prior to supplying drinking water to users of the system.

**NOTE:** If you have some treatment equipment installed that is not yet in accordance with the requirements for treatment equipment outlined in the Regulation, you have to sample twice a week for microbiological parameters.

**TABLE 1b. CHEMICAL SAMPLING AND TESTING REQUIREMENTS FOR YEAR-ROUND RESIDENTIAL AND LARGE NON-RESIDENTIAL (SCHEDULE 13)**

| | CHEMICAL PARAMETERS |
|---|---|
| **How often to collect samples (at least)** | It varies depending on the parameter. See Schedule 13.<br>**Nitrate & Nitrite:**<br>♦ Once every 3 months<br>**Trihalomethanes (THMs)** (only those systems that chlorinate or chloraminate)**:**<br>♦ Once every 3 months<br>**Sodium and Fluoride:**<br>♦ Every 60 months<br>**Lead:**<br>♦ Every 12 months<br>**All organic and inorganic parameters listed in Schedules 23 and 24 of the Drinking-Water Systems Regulation[4]:**<br>♦ Once every 36 months (if raw water supply is from ground water)<br>♦ Once every 12 months (if raw water supply is from surface water) |

[4] If, any chemical test result exceeds half of the Maximum Acceptable Concentration (MAC) for the parameter listed in Schedule 2 of the Ontario Drinking-Water Quality Standards Regulation (O. Reg. 169/03), you must increase the frequency of the sampling for that parameter to once every 3 months. If subsequent levels are below half the MAC for 4 consecutive quarters (surface water) or 2 consecutive quarters (ground water), you may then revert back to the original frequency.

| | CHEMICAL PARAMETERS |
|---|---|
| **Specific parameters to measure** | ♦ See list above |
| **Where to collect samples** | ♦ Point where water enters the distribution system or plumbing, except for:<br>• **Trihalomethanes:** the sample must be taken from a point in the distribution system that is likely to have an elevated potential for the formation of THMs<br>• **Lead:** the sample must be taken from a point in the distribution system that is likely to have an elevated concentration of lead |
| **Who performs analysis for parameters** | ♦ A lab accredited for testing the parameter |
| **By what date first samples must be taken** | ♦ If testing was previously done under Regulations 459/00 or 505/01 or under an OWRA approval or order, within the period of time set by the Regulation after the date of the last sample;<br>♦ For new systems that have not done chemical testing described in the previous bullet, within the period of time set by the Regulation or 12 months, whichever is shorter. |

**NOTE:** If your drinking-water system is not operating for 60 or more consecutive days, or if for such a period the system supplies water only to the private residences that are occupied by the owner of the system, members of the owner's family, employees or agents of the owner of the system or their families, you are not required to perform sampling and testing for trihalomethanes, nitrate and nitrite during that period.

### E. SELECTING A LABORATORY TO ANALYZE YOUR DRINKING-WATER SAMPLES (Regulation, schedule 6)

When you send your water samples to a lab to be analyzed, there are a number of conditions you and the lab must meet. It is up to you to ensure each of the following:

- The lab is accredited to test for the parameter for which you are sending your water sample to be analyzed. Not all labs are accredited to test for all parameters. Be sure that the lab is accredited for each parameter it is testing by asking the lab to supply you with their current Standards Council of Canada (SCC) Scope of Accreditation. If the laboratory proposes to subcontract tests for which they are not accredited, they must have your consent.
- As of October 1, 2003, if the lab doing the analysis is located outside Ontario, then ensure they are on a list of eligible out-of-province laboratories (check with the Ministry of Environment by contacting the MOE Service Desk at 1-866-494-6663).
- You must submit a written notice to the Ministry of the Environment identifying the lab(s) that will be carrying out the testing before you send your samples to the lab(s) for the first time. You must use a form approved by the MOE Director. Once you have submitted the

Notification of Lab Services form, you do not have to submit it again unless you change a lab or you change the testing services provided by a lab.

- It is the responsibility of the lab to ensure that they send to you or the operator of the drinking-water system (and the MOE), a report of all test results within 28 days of your water samples being analyzed.

**BOX 2a. ADVERSE TEST RESULTS AND OTHER PROBLEMS**

The following **adverse test results** must be reported immediately to the Ministry of the Environment's Spills Action Centre and the Medical Officer of Health in accordance with section 18 of the SDWA:

- a result that exceeds any of the standards listed in Schedules 1, 2 or 3 of the Ontario Drinking-Water Quality Standards Regulation
- a result indicating the presence of *Aeromonas* spp., *Pseudomonas aeruginosa, Staphylococcus aureus, Clostridium* spp., or fecal *streptococci* in a sample of drinking water
- a result indicating the presence of a pesticide not listed in Schedule 2 of the Ontario Drinking-Water Quality Standards Regulation is detected in a sample of drinking water
- if chlorination is used, a result indicating that the concentration of free chlorine residual is less than 0.05 mg/L in a distribution sample
- if chloramination is used, a result indicating that the concentration of combined chlorine residual is less than 0.25 mg/L in a distribution sample
- test result exceeding the maximum concentration for a parameter identified under an approval or order as a health-related parameter
- if filtration is required, a result indicating the turbidity is more than 1.0 NTU in filter effluent if grab sampling or, if continuously monitoring, more than 1.0 NTU in 2 consecutive filter effluent samples taken 15 minutes apart (report only once per 24 hours)
- a result indicating the sodium concentration exceeds 20 mg/L in a sample of drinking water (report only once per 5 years)
- a result indicating the fluoride concentration exceeds 1.5 mg/L in a sample of drinking water (report only once per 5 years)

The following **observations** must also be reported immediately to the Ministry of the Environment's Spills Action Centre and the Medical Officer of Health in accordance with section 18 of the SDWA:

- any observation that indicates that a drinking-water system that provides or is required to provide disinfection is directing water that has not been properly disinfected to users

## F. Notifying Authorities of Adverse Test Results and Other Problems (Regulation, schedule 16)

As soon as you become aware of an adverse test result or if you observe that your drinking-water system is not properly disinfecting water that is being directed to users (see **Box 2a** above), you must:

1. Immediately report it to:

    - The local Medical Officer of Health, by speaking with someone in person or on the telephone, at your local Public Health Unit (see **Chapter 13** in this kit for a list of Public Health Units); and

    - MOE, by speaking with someone in person or on the telephone, at the Spills Action Centre (Tel: 1-800-268-6060 – see **Chapter 11**).

When you report, you must specify the adverse test result or the observation that your drinking-water system has not adequately disinfected water directed to users of the system, and the action or appropriate corrective action that is being taken.

2. You must deliver written notice within 24 hours of giving the immediate verbal notice using a form approved by the MOE Director (see **Chapter 11**). The written notice must indicate the problem and the appropriate corrective action that is being taken. Send the written notice to:

    - The local Medical Officer of Health (see **Chapter 13** in this kit for a listing of Public Health Units); and

    - The MOE Spills Action Centre (Tel: 1-800-268-6060 – see **Chapter 11**).

3. You must deliver follow-up written notice within 7 days of resolving the issue that gave rise to the first notice using a form approved by the MOE Director (see **Chapter 11**). The follow-up written notice must summarize the action taken and the results achieved to the local Medical Officer of Health, and the MOE Spills Action Centre.

## G. Corrective Action (Regulation, schedule 18)

In the event that your system experiences an adverse test result or you observe that your system is not properly disinfecting water that is being directed to users, not only must you notify the appropriate people (as described above), but you must also take corrective action to protect the users of your water. There are different types of corrective actions depending on the type of water quality problem you find in your samples.

Schedule 18 of the Drinking-Water Systems Regulation describes different corrective actions that are required following certain adverse test results or observation of certain problems. These are summarized in **Table 2a**.

## TABLE 2a. CORRECTIVE ACTIONS TO TAKE WHEN ADVERSE TEST RESULTS ARE RECEIVED OR OTHER PROBLEMS ARE OBSERVED (SCHEDULE 18 OF O. REG. 170/03)

| ADVERSE TEST RESULT OR OTHER PROBLEM | WATER USE | TREATMENT | SAMPLING AND TESTING | CONSULT WITH ... |
|---|---|---|---|---|
| **Water not disinfected properly has been directed to users** | Take steps to notify users to use an alternate source of drinking water. | Restore the disinfection. | Minimum daily grab samples or continuous monitoring with alarms. | **Local Medical Officer of Health** |
| **If filtration is required, the turbidity in filter effluent is more than 1.0 NTU** | Take steps to notify users to use an alternate source of drinking water. | 1. Check the filters and monitoring equipment;<br>2. Review and correct upstream processes;<br>3. Follow manufacturer's recommendations for servicing or replace filter cartridges;<br>4. Flush the distribution system and plumbing. | Minimum daily grab samples or continuous monitoring with alarms. | **Local Medical Officer of Health** |
| **If chlorination is used, free chlorine residual is less than 0.05 mg/L in a distribution sample** | Take steps to notify users to use an alternate source of drinking water. | Increase chlorine dose and flush the distribution system and plumbing. | Minimum daily grab samples. | **Local Medical Officer of Health** |
| ***E. Coli* or fecal coliform detected** | Take steps to notify users to use an alternate source of drinking water. | Increase chlorine dose and flush the distribution system and plumbing.[5] | Resample and test. Continue corrective action until *E. Coli* and fecal coliforms are no longer detected in 2 consecutive sets of samples taken 24 to 48 hours apart. | **Local Medical Officer of Health** |
| **Total coliforms (but not fecal coliforms) confirmed upon resample** | Take steps to notify users to use an alternate source of drinking water. | Increase chlorine dose and flush the distribution system and plumbing.[5] | Continue corrective action until total coliforms are no longer detected in 2 consecutive sets of samples taken 24 to 48 hours apart. | **Local Medical Officer of Health** |
| **More than 200 CFU/100 mL (but not fecal coliforms) confirmed on a total coliform membrane filter upon resample** | Consult with **local Medical Officer of Health** on water use. | Increase chlorine dose and flush the distribution system and plumbing.[5] | Continue corrective action until less than 200 CFUs/100 mL are detected in 2 consecutive sets of samples taken 24 to 48 hours apart. | **Local Medical Officer of Health** |

[5] If you are not currently using chlorine, take the corrective action as outlined in the Ministry's *"Procedure for Corrective Action for Systems Not Currently Using Chlorine"* (available on the Ministry's Web site, www.ene.gov.on.ca).

| Adverse Test Result or Other Problem | Water Use | Treatment | Sampling and Testing | Consult with ... |
|---|---|---|---|---|
| **More than 500 CFU/mL (but not fecal coliforms) confirmed on a heterotrophic plate count (HPC) upon resample** | Consult with **local Medical Officer of Health** on water use. | Increase chlorine dose and flush the distribution system and plumbing.[5] | Continue corrective action until less than 500 CFUs/mL are detected in 2 consecutive sets of samples taken 24 to 48 hours apart. | **Local Medical Officer of Health** |
| ***Aeromonas* spp., *Pseudomonas aeruginosa, Staphylococcus aureus, Clostridium* spp., or fecal *streptococci* are confirmed upon resample.** | Consult with **local Medical Officer of Health** on water use. | Increase chlorine dose and flush the distribution system and plumbing.[5] | Continue corrective action until *Aeromonas* spp., *Pseudomonas aeruginosa, Staphylococcus aureus, Clostridium* spp. or fecal *streptococci* are not detected in 2 consecutive sets of samples taken 24 to 48 hours apart. | **Local Medical Officer of Health** |
| **Exceeding a chemical and radiological parameter listed in Schedule 2 or 3 of the Ontario Drinking-Water Quality Standards Regulation (O. Reg. 169/03)** | Consult with **local Medical Officer of Health** on water use. | Consult with **local Medical Officer of Health** on treatment. | Resample and test. | **Local Medical Officer of Health** |
| **Pesticide NOT listed in Schedule 2 of the Ontario Drinking-Water Quality Standards Regulation (O. Reg. 169/03) is detected** | Consult with **local Medical Officer of Health** on water use. | Consult with **local Medical Officer of Health** on treatment. | Resample and test. | **Local Medical Officer of Health** |
| **Exceeding the maximum concentration for a parameter identified under an approval or order as a health-related parameter** | Consult with **local Medical Officer of Health** on water use. | Consult with **local Medical Officer of Health** on treatment. | Resample and test. | **Local Medical Officer of Health** |
| **Sodium concentration exceeds 20 mg/L and a report has not been made in the previous 5 years** | Consult with **local Medical Officer of Health** on water use. | Consult with **local Medical Officer of Health** on treatment. | Resample and test. | **Local Medical Officer of Health** |

**Note:** "resample and test" (defined in the interpretation section of O. Reg. 170/03) for a microbiological parameter means that you must collect and test a set of **at least 3 water samples** for the parameter, which caused the adverse water quality. The first sample must be from the same location as the sample that gave rise to the corrective action. The second sample must be from a location that is a significant distance upstream from the location of the adverse result, where reasonably possible, and the third sample must be from a location that is a significant distance downstream from the adverse result, where reasonably possible.

"resample and test" for a parameter that is not a microbiological parameter means that you must collect and test a water sample for the parameter which caused the adverse water quality from the same location as the sample that gave rise to the corrective action.

## H. Warning Notices of Potential Problems (Regulation, schedule 19)

**When is it necessary to post a warning notice?**

You must post a warning notice:

- If you are not presently in compliance with microbiological sampling and testing requirements of Schedules 11 or 12;
- If you did not carry out appropriate corrective action (as specified in **Table 2a** of this kit); and/or
- If you must, as a corrective action, notify all users to use an alternate source of water or to boil the water for at least one minute before using.

**Where to post the warning notice**

- Post the notice in a prominent location where it is likely to be seen by those using water from the system.
- If you fail to post a warning notice at your drinking-water system, a provincial officer or public health inspector may do so.

More information on posting a warning notice and how to obtain free-of-charge notices can be found in **Chapter 6**.

## I. Making Required Information Available (Regulation, section 12)

You must make certain reports and documents available at each drinking-water system, so that interested persons may read them on-site, free of charge, during normal business hours. These include copies of:

- every test result (not older than two years) required by O. Reg. 170/03, or O. Reg. 459/00 or under an approval or order;
- every approval and order issued (not older than two years) that applies to your drinking-water system and that is still in effect, if it was issued after **January 1, 2001**;
- every annual report prepared under Section 11 of O. Reg. 170/03 or under O. Reg. 459/00;
- a copy of O. Reg. 170/03 (Drinking-Water Systems); and
- a copy of every Engineering Evaluation Report.

## J. Submitting an Annual Report (Regulation, section 11)

You must submit an Annual Report using a prescribed format approved by the MOE Director on the operation of your drinking-water system, according to the following requirements:

| | *Cover period ...* | *Submit by ...* | *Submit to ...* |
|---|---|---|---|
| **Year-Round Residential** | From January 1st through to December 31st. | February 28th of each year | **Ministry of the Environment**<br>Director, Environmental Monitoring and Reporting Branch<br>125 Resources Rd.<br>Toronto, Ontario M9P 3V6<br>Tel: (416) 235-6300<br>Fax: (416) 235-6235 |
| **Large Non-Residential** | From November 1st of the previous year through to October 31st of the current year. | December 31st of each year | |

See **Chapter 8** in this kit for the prescribed format for the Annual Report.

**First Reports**

- If a year-round residential system was required to submit a quarterly report under O. Reg. 459/00, the first report is due February 28, 2004 and shall cover the period from April 1, 2003 to December 31, 2003.
- If a new year-round residential system not subject to O. Reg. 459/00, then the first report is due February 28, 2004 and covers the period from June 1, 2003 to December 31, 2003.
- If a large non-residential system was required to submit a quarterly report under O. Reg. 459/00, the first report is due December 31, 2003 and shall cover the period from April 1, 2003 to October 31, 2003.
- If a large non-residential system was not subject to O. Reg. 459/00 or O. Reg. 505/01, the first report is due December 31, 2003 and shall cover the period from June 1, 2003 to October 31, 2003.

**NOTE:** If your drinking-water system is connected to and receives all of its drinking water from another drinking-water system, the owner of the drinking-water system to which the water is obtained must ensure that the owner of the connected drinking-water system is given a copy of the annual report.

### K. RETAINING REQUIRED REPORTS AND DOCUMENTS (Regulation, section 13)

Drinking-water system owners, laboratories, and schools/day nurseries must keep copies of certain reports and documents on file.

**As a water works owner, you must keep copies of:**

*For at least 5 years ...*

- Every record or report of test results for microbiological parameters and operational checks as required under section 7, Schedules 6-12 or sections 18-5 to 18-9 of Schedule 18 of the Drinking-Water Systems Regulation (O. Reg. 170/03).
- Every annual report prepared under Section 11 of the Drinking-Water Systems Regulation (O. Reg. 170/03).
- Every record or report related to a test result under an approval or order, unless the record or report relates to an organic or inorganic parameter listed in Schedule 23 or 24 of the Drinking-Water Systems Regulation (O. Reg. 170/03) or a parameter listed in Schedule 3 of the Ontario Drinking-Water Quality Standards Regulation (O. Reg. 169/03).
- Every record of weekly flushing made under the Schools, Private Schools and Day Nurseries Regulation (O. Reg. 173/03) (schools/day nurseries only).
- Every record or report of test results for microbiological parameters prepared under section 7, and clause 9(b) of Ontario Regulation 459/00 before the Regulation was revoked on June 1, 2003.

**As a water works owner, you must keep copies of:**

- Every annual report prepared under section 12 of Ontario Regulation 459/00 before the Regulation was revoked on June 1, 2003.

*For at least 15 years ...*

- Every record or report of test results for chemical parameters as required by Schedule 13 and 18 of the Drinking-Water Systems Regulation (O. Reg. 170/03).
- Every record or report related to a test result under an approval or order if the record or report relates to an organic or inorganic parameter listed in Schedule 23 or 24 of the Drinking-Water Systems Regulation (O. Reg. 170/03) or a parameter listed in Schedule 3 of the Ontario Drinking-Water Quality Standards Regulation (Reg. 169/03).
- Every Engineering Evaluation Report prepared under Schedule 21 of the Drinking-Water Systems Regulation (O. Reg. 170/03).
- Every record or report of test results for chemical parameters prepared under section 7 and clause 9(a) of Ontario Regulation 459/00 before the Regulation was revoked on June 1, 2003.
- Every report relating to the drinking-water system's raw water supply prepared under paragraph 7 of subsection 2(2) (written report concluding that the system's raw water is ground water under the direct influence of surface water) or subsection 2(3)(a) (written report prepared after August 1, 2000, concluding that the raw water supply is not ground water under the direct influence of surface water).
- If the owner gave the Director a written statement by a professional engineer under subsection 21-2 (3) of Schedule 21, a copy of the OWRA approval referred to in that section.

**NOTE:** If the MOE Director or provincial officer requests your records, you must send them **within the period requested**.

## L. REQUIRED FORMS (Regulation, section 14)

Whether you submit a written notice, post a warning notice or submit a report, you must use a form approved by the MOE Director. Refer to **Chapter 11** for information regarding some of the forms associated with O. Reg. 170/03 (Drinking-Water Systems Regulation).

# 3 SPECIFIC REQUIREMENTS FOR NON-MUNICIPAL SEASONAL RESIDENTIAL AND SMALL NON-RESIDENTIAL DRINKING-WATER SYSTEMS

There are a number of requirements that you must meet to comply with the Regulation. To assist you in understanding your full range of responsibilities as a drinking-water system owner, this portion of the kit explains each of the regulatory requirements that apply to you.

**NOTE:** This section is for guidance only. For a complete understanding of your responsibilities as a drinking-water system owner, you must refer directly to the Drinking-Water Systems Regulation.

Below is a summary of the specific requirements for Seasonal Residential and Small Non-Residential drinking-water systems that will be discussed in this chapter.

| REQUIREMENTS | PAGE # IN KIT | SECTION(S) IN REGULATION |
|---|---|---|
| **A. Engineering Evaluation Report and Written Notice** | 34 | Schedule 21 |
| **B. Trained Person** | 36 | Section 1, Schedule 2, Schedule 6 & Schedule 9 |
| **C. Provision of Treatment Equipment** | 36 | Schedule 2 |
| **D. Operational Checks, Sampling and Testing – General** | 41 | Schedule 6 |
| **E. Selecting a Laboratory to Analyze your Drinking-Water Samples** | 47 | Schedule 6 |
| **F. Notifying Authorities of Adverse Test Results and Other Problems** | 48 | Schedule 16 |
| **G. Corrective Action** | 49 | Schedule 18 |
| **H. Warning Notices of Potential Problems** | 52 | Schedule 19 |
| **I. Making Required Information Available** | 52 | Section 12 |
| **J. Submitting an Annual Report** | 52 | Section 11 |
| **K. Retaining Required Reports and Documents** | 53 | Section 13 |
| **L. Required Forms** | 54 | Section 14 |

## A. Engineering Evaluation Report and Written Notice (Regulation, schedule 21)

As a **Seasonal Residential** or **Small Non-Residential** drinking-water system owner, you must ensure that a professional engineer prepares and submits to you an **engineering evaluation report.** The engineer must also submit a notice to the Director once the report has been completed. The report must certify that the professional engineer has visited your drinking-water system and include the engineer's opinion that all equipment needed to comply with treatment requirements (Schedule 2) is being provided, and that all equipment required in order to ensure compliance with operational checks (Schedules 6 and 9) is being provided. The notice to be submitted to the Director must also include a copy of the opinion by the engineer that the equipment is being provided. These requirements replace the requirement under the *Ontario Water Resources Act* to obtain a certificate of approval.

### (1) Engineering Evaluation Report

You must ensure that the professional engineer that prepares the **engineering evaluation report** has experience in sanitary engineering.

### Contents of Engineering Evaluation Reports

As a minimum, in order to comply with schedule 21 of the Regulation, each report must:

1. Specify the category of drinking-water system for the purposes of the Regulation
2. Include the opinion of the engineer that all equipment has been provided in compliance with schedules 2, 6, and 9 is being provided
3. Set out the engineer's reasons for the opinion along with the technical and other information he or she relied on in reaching that opinion
4. Include a maintenance schedule that sets out requirements relating to the frequency at which the equipment must be inspected, tested and replaced

A sample of a maintenance schedule for a system using ultraviolet light disinfection equipment is included below:

**Sample Maintenance Schedule for UV Disinfection Equipment**

| Task | Frequency |
|---|---|
| Ballasts inspection | 3-6 months |
| Ballasts replacement | Every 5 years |
| Chemical cleaning | Monthly |
| Lamp replacement | 5000 hours (7 months) to 8000 hours (11 months) |
| Mechanical wiper maintenance | Yearly |
| Sensor calibration | Weekly to monthly |
| Sensor replacement | Yearly |
| Sleeve inspection | Yearly |
| Sleeve replacement | 3-5 years |

**When is your Engineering Evaluation Report Due?**

If your drinking-water system began operating on or after June 1, 2003, you must ensure that a professional engineer submits to you an Engineering Evaluation Report **within 30 days** of your new drinking-water system beginning operation.

If your drinking-water system began operating before June 1, 2003, you must ensure that a professional engineer submits to you an Engineering Evaluation Report **within 30 days** after the date by which you are required to provide treatment equipment (Schedule 2 of the Regulation) for your drinking-water system.

If you alter your drinking-water system ("alteration" is a defined term in the SDWA and does not include repairs), then you must ensure that a professional engineer submits to you an Engineering Evaluation Report within 30 days of commencing operation of the altered system.

### (2) Written Notice

Within 7 days after the engineering evaluation report is required to be prepared, you must submit a written notice to the MOE Director using an approved form (see **Chapter 11**) regarding the engineering evaluation report and include a copy of the engineer's opinion regarding your drinking-water system's compliance.

### Exemptions

- If you have already prepared and submitted to the MOE Director an engineering evaluation report under Regulation 505/01, you are exempt from preparing an engineering evaluation report and submitting a written notice to the MOE Director.
- If you have already been granted an approval after August 1, 2000, under Section 52 of the *Ontario Water Resources Act* (Certificate of Approval) after August 1, 2000, you are exempt from preparing an engineering evaluation report and submitting a written notice to the MOE Director.
- However, if you have been granted an approval under the *Ontario Water Resources Act* after August 1, 2000, you must have an engineer prepare a statement certifying that she or he has visited the system and that equipment required by Schedules 2, 6 and 9 of the Regulation is being provided (see Schedule 21 for more details). The Regulation provides that the *Ontario Water Resources Act* approval is revoked on the date the owner submits this statement to the Director, which means the drinking-water system will no longer be subject to the requirements of the *Ontario Water Resources Act* approval – and will instead be regulated by the Drinking-Water Systems Regulation under the *Safe Drinking Water Act.*

### Relief from Requirements for Provision of Treatment Equipment

- If you have been granted relief by the MOE Director from complying with all requirements to provide treatment equipment you are exempt from preparing an engineering evaluation report and submitting a written notice to the MOE Director.

**Frequency of Subsequent Engineering Evaluation Reports**

As a drinking-water system owner, you must also ensure that a professional engineer prepares and submits to you Engineering Evaluation Reports **not later than**:

- **5 years** from the date your last Engineering Evaluation Report was prepared or required to be prepared (the earlier of the two) if your drinking-water system obtains water from a surface water source.
- **10 years** from the date your last Engineering Evaluation Report was prepared or required to be prepared (the earlier of the two) if your drinking-water system obtains water from a ground water source.

Notices are also required to be submitted to the Ministry at these times.

### B. Trained Person (Regulation, section 1 and Schedules 2, 6 and 9)

A **trained person** must carry out the following required activities:

- perform any necessary adjustments to the water treatment equipment; and
- conduct all required operational checks.

The Drinking-Water Systems Regulation defines "**trained person**" as:

a) a certified operator, or

b) a person who, in the preceding 36 months, successfully completed a course approved by the Director that relates to the operation and routine maintenance of drinking-water systems.

Refer to **Chapter 14** in this kit for information on required and acceptable training.

**Note:** A **water quality analyst** may also be used to carry out certain required operational tests. Requirements to have a **trained person** take effect once the drinking-water system complies with the treatment equipment requirements.

More information on training courses can be found in the Ontario Environmental Training Consortium's Program Guide at www.oetc.on.ca or by calling the Operator Certification Office at (905) 796-2851.

### C. Provision of Treatment Equipment (Regulation, schedule 2)

As a drinking-water system owner, you must treat your water by the date specified in the Regulation for your system's category, unless you are eligible for one of the exemptions from the treatment equipment requirements. To meet the Drinking-Water Systems Regulation's mandatory treatment requirements, you must, at the very least, ensure that:

- wells are constructed and maintained in order to prevent surface water and other foreign materials from entering them;
- appropriate water treatment equipment is provided;
- water treatment equipment is operating whenever water is being supplied;
- if secondary disinfection is required, the water treatment equipment that provides secondary disinfection produces at all times in the distribution system:
  - a free chlorine residual of at least 0.05 mg/L, if your drinking-water system provides chlorination; or

- a combined chlorine residual of at least 0.25 mg/L, if your drinking-water system provides chloramination;

- water treatment equipment is operated as outlined in the Ministry's *"Procedure for Disinfection of Drinking Water in Ontario"*;
- water treatment equipment is operated such that it achieves the design capabilities it is required to have;
- water treatment equipment is properly maintained;
- written operating instructions for the water treatment are kept near the equipment;
- adequate supplies of chemicals (or other materials necessary for operating the water treatment equipment) are:
  a) clearly marked;
  b) kept near the equipment;
  c) separated from other chemicals and materials that are not used for the water treatment or distribution system; and
- replacement parts (for those parts that need to be replaced periodically) are kept nearby.

**Ground Water Supplies**

Primary Disinfection

If your drinking-water system uses a ground water source, you must ensure that you provide water treatment equipment that:

- is designed to be capable of achieving, at all times, primary disinfection in accordance with the Ministry's *"Procedure for Disinfection of Drinking Water in Ontario"* including at least 99% removal or inactivation of viruses.

**Surface Water Supplies**

Filtration and Primary Disinfection

If your drinking-water system uses a surface water source (or a GUDI source), you must ensure that you provide water treatment equipment that:

- is designed to be capable of achieving, at all times, filtration and primary disinfection in accordance with the Ministry's *"Procedure for Disinfection of Drinking Water in Ontario"* including removal or inactivation of at least **99%** of *Cryptosporidium* oocysts, **99.9%** of *Giardia* cysts, and **99.99%** of viruses.

If you are using UV or other non-chlorine based primary disinfection equipment, you must ensure that the equipment has a feature that causes an alarm to sound in the building where the disinfection equipment is located, at a location where a person is present, if a person is not always present at the building where the disinfection equipment is located and in any designated facilities served by the system when:

- equipment malfunctions;
- equipment loses power; or
- the disinfection equipment is not providing the appropriate level of disinfection.

**If an alarm sounds, a "trained person" must be dispatched to take appropriate action and must arrive at the building where the disinfection equipment is located as soon as possible.**

### Secondary Disinfection

Unless the "Note" below applies to your system, you must ensure that you provide water treatment equipment that:

- is designed to be capable of secondary disinfection using chlorination or chloramination in accordance with the Ministry's *"Procedure for Disinfection of Drinking Water in Ontario"*; and
- is designed to be capable of achieving at all locations within the distribution system:
  - a free chlorine residual of 0.2 mg/L (if chlorinating)
  - a combined chlorine residual of 1.0 mg/L (if chloraminating)

**NOTE:** If you provide primary disinfection (ground water) or filtration and primary disinfection (surface water) and all of your distribution system or plumbing after treatment is enclosed in a building or protective structure, you do not have to provide secondary disinfection.

**Point of Entry Treatment Units (small non-residential only)**

Point of entry treatment units can be used for the purpose of meeting the treatment requirements of the Regulation. If you are considering using a point of entry approach to provide disinfection for your drinking-water system, please refer to the specific requirements in the Regulation related to using point of entry units. Systems that use point of entry units in accordance with the Regulation do not have to provide secondary disinfection.

### Appropriate Water Treatment Equipment

You have the flexibility to select any treatment technology that meets the performance-based criteria established in Schedule 2 of the Drinking-Water Systems Regulation. Primary disinfection of water in a drinking-water system is usually accomplished with chlorine, but UV irradiation, ozone or other method of disinfection may be acceptable if it meets the performance criteria.

### Written Notice of Your Intentions Regarding Treatment Equipment (Schedule 2)

Unless the "Note" below applies to your system, you must submit the written notice to the MOE Director on an approved form (see **Chapter 11**), by July 1, 2004 (seasonal residential systems) or by December 31, 2004 (small non-residential systems) that includes one of the following three declarations:

1. You intend to comply with the requirements for treatment equipment by the specified deadline

**OR**

2. You intend to make an application for relief from some or all of the requirements for provision of treatment equipment

**OR**

3. You intend to post warning notices and take the other steps necessary to obtain the exemption provided by section 8 of the Regulation (see **Chapter 7** for more details).

**NOTE:** If you have already notified MOE of the completion of the Engineering Evaluation Report or submitted an application for relief from the requirements for provision of treatment equipment by July 1, 2004, then you do not need to submit this notice. The requirement to submit written notices of intention also does not apply to systems serving designated facilities. These systems must have the required treatment equipment already in place by the time the notices are due.

### Relief from Requirements for Provision of Treatment Equipment

If your drinking-water system only has a raw water supply that is ground water, you may apply for relief from all treatment requirements. See **Chapter 5** for the regulatory requirements and for information on how to apply for relief from all treatment requirements.

**NOTE:** If you are not granted relief by the MOE Director you must comply with requirements for provision of treatment equipment by the specified deadline.

**Deadlines For Providing Treatment Equipment**

| | DEADLINES |
|---|---|
| If your drinking-water system was operating before June 1, 2003. | **July 1, 2005** (if your drinking-water system obtains water from a surface water source)<br>**December 31, 2006** (if your drinking-water system obtains water from a ground water source) |
| Serves a designated facility other than a school | **July 1, 2003** |
| Serves a new designated facility (children's camp or non-commercial seniors' residence) | **July 1, 2004** |

**NOTE:** Compliance dates specified in an existing OWRA approvals or orders in relation to a requirement to install treatment equipment take precedence over the compliance dates in the Regulation.

**EXEMPTIONS FROM PROVIDING TREATMENT, TESTING, ETC. (section 8)**

You may be exempted from regulatory requirements according to section 8, if

Your drinking-water system does not use electricity OR if you own a small non-municipal non-residential drinking-water system that uses electricity but does not serve any designated facilities or food premises that rely on the system for the supply of potable water (under the Food Premises Regulation, Regulation 562).

AND

1. You post appropriate warning notices.
2. You check your warning notices once a week to make sure they are in compliance with O. Reg. 170/03.
3. You disconnect all drinking water fountains to render them inoperable.
4. You provide written notice to the Ministry of the Environment Director using an approved form (see **Chapter 11**) that the above steps have been taken.

For more information on section 8 exemptions, see **Chapter 7**.

## OTHER EXEMPTIONS

### Exemptions for Residential Systems (section 5)

If you own a residential system that obtains all its water from a drinking-water system that is subject to O. Reg. 170/03, and that provides secondary disinfection in accordance with the Regulation, and the owner of the system providing the water has agreed in writing to ensure that 1) the secondary disinfection equipment is operated so that at all times and at all locations within your distribution system the required free or combined chlorine residual is maintained (whichever applies), and 2) to sample and test the water in the distribution system of the system that obtains the water as if it were part of the distribution system of the system providing the water, you are exempt from most of the requirements of O. Reg. 170/03. If you do not have such an agreement, certain sampling and monitoring activities of the water in your distribution system still apply to you as the owner of that system. Refer to section 5 of the Regulation for more details about these requirements.

### Exemptions for Non-Residential Systems (section 6)

If you own a non-residential system that is connected to and receives water from a drinking-water system that is subject to O. Reg. 170/03, and that provides secondary disinfection in accordance with the Regulation, and the owner of the system providing the water has agreed in writing to ensure that 1) the secondary disinfection equipment is operated so that at all times and at all locations within your distribution system the required free or combined chlorine residual is maintained (whichever applies), and 2) to sample and test the water in the distribution system of the system that obtains the water as if it were part of the distribution system of the system providing the water, you are exempt from most of the requirements of O. Reg. 170/03. Refer to section 6 of the Regulation for more details about these requirements.

**NOTE:** A network of pipes that is located on a single property and that is connected to a regulated drinking-water system is not considered to be a drinking-water system to which O. Reg. 170/03 applies. To be considered as a connected drinking-water system to which section 5 or 6 exemptions from regulatory requirements apply, the network of pipes that receives water from the regulated system would have to be located on more than one property.

### Exemptions for Non-Residential Systems Receiving Transported Water (section 7)

If you own a non-residential system that receives transported water from a drinking-water system that is subject to O. Reg. 170/03, and that provides secondary disinfection in accordance with the Regulation, you are exempt from most requirements of the regulation but still have to monitor chlorine residual in your system on any day in which a designated or public facility is open. Note that if your system provides disinfection equipment for primary disinfection that does not use chlorination or chloramination, you do not have to monitor chlorine residual if your disinfection equipment is properly alarmed. Refer to section 7 of the Regulation for more details about these requirements.

## D. Operational Checks, Sampling and Testing – General (Regulation, schedules 6-15)

### Operational Checks (schedule 9)

- You must ensure that a **trained person** performs a regular operational check to ensure that all water treatment equipment is functioning properly (**as specified in the maintenance schedule of the Engineer's Evaluation Report** – see "Sample Maintenance Schedule for UV Disinfection Equipment" below).
- You must record the date and time of the operational check, the name of the person who performed the operational check, and the result of the operational check.
- You must ensure that a **trained person** or **water quality analyst** samples and tests your drinking water for turbidity and free residual chlorine or combined chlorine residual, if applicable. See below for details.
- Operational checks for turbidity and chlorine residual should be conducted on-site. They can not be sent to a laboratory for analysis unless the laboratory is located nearby.
  - When checking chlorine residual, an electronic direct readout colourimetric or amperometric chlorine analyzer must be used or another device that a professional engineer has certified in writing is equivalent or better than those devices, having regard to the device's accuracy, reliability and ease of use. See Schedule 6 of the Regulation.
  - Whenever a sample is taken and tested as part of an operational check performed in accordance with Schedule 9, the person taking the sample must record the date and time the sample was taken, the location the sample was taken and the person's name. In addition, the record should include the date and time the sample was tested and the results of the tests (and the name of the person who conducted the test, if this is a different person from the person who took the sample). See Schedule 6 of the Regulation.

**Note:** A **water quality analyst** may also be used to carry out certain required operational tests. A person other than a **trained person** is permitted to perform operational checks until the equipment required to ensure compliance with Schedule 2 of the Regulation commences operation.

**Note:** If your drinking-water system is not operating for 60 or more consecutive days or if for such a period the system supplies water only to the private residences that are occupied by the owner of the system, members of the owner's family, employees or agents of the owner of the system or their families, you are not required to perform operational checks on days during that period.

**Sample Maintenance Schedule for UV Disinfection Equipment**

| Task | Frequency |
|---|---|
| Ballasts inspection | 3-6 months |
| Ballasts replacement | Every 5 years |
| Chemical cleaning | Monthly |

| TASK | FREQUENCY |
|---|---|
| Lamp replacement | 5000 hours (7 months) to 8000 hours (11 months) |
| Mechanical wiper maintenance | Yearly |
| Sensor calibration | Weekly to monthly |
| Sensor replacement | Yearly |
| Sleeve inspection | Yearly |
| Sleeve replacement | 3-5 years |

**Turbidity (test at least once a day)**

Surface Water Using Filtration
If continuous monitoring equipment is required on filtration equipment to comply with the treatment performance requirements of Schedule 2, you must ensure that sampling and testing for turbidity is conducted by continuous monitoring equipment on each filter effluent line.

If continuous monitoring equipment is not required, then you must ensure that a daily water sample is taken on each filter effluent line and tested for turbidity.

Other
No operational checks for turbidity are required.

When testing for turbidity, a turbidity meter that measures turbidity in Nephelometric Turbidity Units (NTUs) must be used. See Schedule 6.

**Chlorine Residual**

Primary Disinfection – Chlorination
Sample shall be taken at least once per day and tested for free chlorine residual in the treatment process at the end of contact time as required in the Ministry's *"Procedure for Disinfection of Drinking Water in Ontario."*

Secondary Disinfection – Chlorinating or Chloramination
Where a system serves more than one building and secondary disinfection is provides, samples shall be taken from the distribution system at least once every day and tested for free chlorine residual or combined chlorine residual.

**NOTE:** Every time a water sample is collected for microbiological testing, a measurement of free chlorine residual (where chlorination is provided) or combined chlorine residual (where chloramination is provided) must be conducted at the same time and at the same location. This requirement of chlorine residual taken with a microbiological sample can satisfy a daily requirement to test for chlorine residual under the Regulation.

**Exception for Seasonal Residential and Small Non-Residential Systems**

Small non-residential systems are not required to conduct operational checks on days when all designated facilities and all public facilities are not open. Seasonal residential systems are not required to conduct operational checks during the period of 60 or more consecutive days when the system is not in operation.

Section 3 of the Drinking-Water Systems Regulation states:

- A school or private school is open on a day if, at any time during that day, programs for children under 18 years of age are held at the school or private school.
- A designated facility, other than a school or private school, is open on a day if, at any time during that day, any of the persons that the facility serves, cares for or provides programming for are present at the facility.
- A public facility is open on a day unless persons served by the facility are denied access to the facility during the entire day.
- A place that is both a designated facility and a public facility is open on a day when either the designated facility or the public facility is open.

**Chemical and Microbiological Sampling and Testing**

- You do not need a trained person at your drinking-water system to collect samples of your water for microbiological and chemical testing.
- You must record the date and time the sample was tested, the location where the sample was taken, the name of the person who performed the test and the results of the test. See Schedule 6.
- You must ensure that an accredited lab performs the analytical tests for microbiological and chemical parameters. How often the samples have to be collected, and from where, depends on the type of test being performed. Laboratories will advise you on proper techniques for sample collection, storage, and preservation and may supply the appropriate containers. You must refrigerate or otherwise cool samples for microbiological parameters until they are delivered to the lab.

**Tables 1c & 1d** outline the sampling and analysis requirements that you, as a drinking-water system owner, must ensure are met. For more details, refer to schedule 12, 14 or 15 of the Drinking-Water Systems Regulation.

*The way you collect water samples could affect the accuracy of your test results!*

See **Chapter 9** in this kit for step-by-step instructions on how to properly collect water samples.

**Small Non-Residential Systems**

If your drinking-water system is classified under this category, you do not have to perform operational checks, sampling and testing for microbiological or chemical parameters until two years after June 1, 2003. This does not apply to a drinking-water system that serves a designated facility.

**NOTE:** Children's camps are required to have begun microbiological testing by June 1, 2003 (following the frequencies prescribed in the regulation) and also must take and submit chemical samples for nitrate and nitrite by September 1, 2003 and all other chemical samples by June 1, 2004.

## TABLE 1c. MICROBIOLOGICAL SAMPLING AND TESTING REQUIREMENTS FOR SEASONAL RESIDENTIAL AND SMALL NON-RESIDENTIAL (SCHEDULE 12)

| | MICROBIOLOGICAL PARAMETERS |
|---|---|
| **How often to collect samples (at least)** [Only during the operating season] | For distribution samples:<br>♦ Once every two weeks if chlorinating[6] or chloraminating<br>♦ Once a week if not chlorinating[6] or chloraminating<br>♦ Additional sample each month for every 100 service connections (seasonal residential only)<br>AND<br>For raw water samples:<br>♦ Once a month |

[6] If, for a period of 24 consecutive months, the presence of *E. Coli*, fecal coliforms, or total coliforms are confirmed in drinking-water samples on no more than one occasion (as described in Schedule 1 of the Drinking-Water Quality Standards Regulation O. Reg. 169/03), then the sampling frequency may be reduced to: once every 2 week if not chlorinating or not chloraminating, or once every 4 weeks if chlorinating or chloraminating. However, if, on any two or more occasions drinking-water samples confirm the presence of *E. Coli*, fecal coliforms, or total coliforms in a 24-month period (see Schedule 1 of the Drinking-Water Quality Standards Regulation O. Reg. 169/03), then you must immediately return to the original sampling frequency as described in this table. A written notice of the intention to reduce testing frequencies must also have been given to the Director at least 7 days before the reductions come into effect (refer to the Ministry's Web site at www.ene.gov.on.ca for the approved form).

| | MICROBIOLOGICAL PARAMETERS |
|---|---|
| **Specific parameters to measure** | Total coliforms<br>♦ *E. Coli* or fecal coliforms<br>♦ HPC or total coliform background count by membrane filter analysis (only in distribution samples) |
| **Where to collect samples** | For distribution samples:<br>♦ From the distribution system<br>AND<br>For raw water samples:<br>♦ From the raw water source (and if using ground water, then from each well) |
| **Who performs analysis for parameters** | ♦ A lab accredited for testing the parameter |
| **By what date first samples must be taken** | ♦ June 1, 2003<br>♦ Within one week of commencing operation of new system where chlorine is not used<br>♦ Within two weeks of commencing operation of new system where chlorine is used |

**NOTE:** If your drinking-water system is not in operation for 7 days or more, or if for such a period the system supplies water only to the private residences that are occupied by the owner of the system, members of the owner's family, employees or agents of the owner of the system or their families, you are not required to perform microbiological sampling and testing during that period. However, upon restarting your system you must sample and receive the results prior to supplying drinking water to users of the system.

**NOTE:** If you have some treatment equipment installed that is not yet in accordance with the requirements for treatment equipment outlined in the Regulation, you have to sample once a week for microbiological parameters.

## TABLE 1d. CHEMICAL SAMPLING AND TESTING REQUIREMENTS FOR SEASONAL RESIDENTIAL AND SMALL NON-RESIDENTIAL (SCHEDULES 14 AND 15)

| | CHEMICAL PARAMETERS |
|---|---|
| **How often to collect samples (at least)** [Only during the operating season] | It varies depending on the parameter.<br>**Nitrate/Nitrite:**<br>♦ Once every 3 months<br>**Sodium and Fluoride:**<br>♦ Every 60 months<br>**Lead:**<br>♦ Every 60 months<br>**All organic and inorganic parameters listed in Schedules 23 and 24 of the Drinking-Water Systems Regulation (seasonal residential systems and only those small non-residential systems that serve a designated facility):**<br>♦ Once every 60 months |
| **Specific parameters to measure** | ♦ See list above |
| **Where to collect samples** | ♦ Point where water enters the distribution system or plumbing except for:<br>♦ **Lead:** the sample must be taken from a point in the distribution system that is likely to have an elevated concentration of lead |
| **Who performs analysis for parameters** | ♦ A lab accredited for testing the parameter |
| **By what date first samples must be taken** | ♦ If testing was previously done under Regulations 459/00 or 505/01 or under an OWRA approval or order, within the period of time set by the Regulation after the date of the last sample;<br>♦ For new systems that have not done chemical testing described in the previous bullet, within the period of time set by the Regulation or 12 months, whichever is shorter. |

**NOTE:** If your drinking-water system is not operating for 60 or more consecutive days, or if for such a period the system supplies water only to the private residences that are occupied by the owner of the system, members of the owner's family, employees or agents of the owner of the system or their families, you are not required to perform sampling and testing for trihalomethanes, nitrate and nitrite during that period.

## E. Selecting a Laboratory to Analyze Your Drinking-Water Samples (Regulation, schedule 6)

When you send your water samples to a lab to be analyzed, there are a number of conditions you and the lab must meet. It is up to you to ensure each of the following:

- The lab is accredited to test for the parameter for which you are sending your water sample to be analyzed. Not all labs are accredited to test for all parameters. Be sure that the lab is accredited for each parameter it is testing by asking the lab to supply you with their current Standards Council of Canada (SCC) Scope of Accreditation. If the laboratory proposes to subcontract tests for which they are not accredited, they must have your consent.
- As of October 1, 2003, if the lab doing the analysis is located outside Ontario, then ensure they are on a list of eligible out-of-province laboratories (check with the Ministry of the Environment by contacting the MOE Service Desk at 1-866-494-6663).
- You must submit a written notice to the Ministry of the Environment identifying the lab(s) that will be carrying out the testing before you send your samples to the lab(s) for the first time. You must use a form approved by the MOE Director. Once you have submitted the Notification of Lab Services form, you do not have to submit it again unless you change a lab or you change the testing services provided by a lab.
- It is the responsibility of the lab to ensure that they send to you or the operator of the drinking-water system (and the MOE), a report of all test results within 28 days of your water samples being analyzed.

### BOX 2b. ADVERSE TEST RESULTS AND OTHER PROBLEMS

The following **adverse test results** must be reported immediately to the Ministry of the Environment's Spills Action Centre and the Medical Officer of Health in accordance with section 18 of the SDWA:

- a result that exceeds any of the standards listed in Schedules 1, 2 or 3 of the Ontario Drinking-Water Quality Standards Regulation
- a result indicating the presence of *Aeromonas* spp., *Pseudomonas aeruginosa, Staphylococcus aureus, Clostridium* spp., or fecal *streptococci* in a sample of drinking water
- a result indicating the presence of a pesticide not listed in Schedule 2 of the Ontario Drinking-Water Quality Standards Regulation is detected in a sample of drinking water
- if chlorination is used, a result indicating that the concentration of free chlorine residual is less than 0.05 mg/L in a distribution sample

- if chloramination is used, a result indicating that the concentration of combined chlorine residual is less than 0.25 mg/L in a distribution sample
- test result exceeding the maximum concentration for a parameter identified under an approval or order as a health-related parameter
- if filtration is required, a result indicating the turbidity is more than 1.0 NTU in filter effluent if grab sampling or, if continuously monitoring, more than 1.0 NTU in 2 consecutive filter effluent samples taken 15 minutes apart (report only once per 24 hours)
- a result indicating the sodium concentration exceeds 20 mg/L in a sample of drinking water (report only once per 5 years)
- a result indicating the fluoride concentration exceeds 1.5 mg/L in a sample of drinking water (report only once per 5 years)

The following **observations** must also be reported immediately to the Ministry of the Environment's Spills Action Centre and the Medical Officer of Health in accordance with section 18 of the SDWA:

- any observation that indicates that a drinking-water system that provides or is required to provide disinfection is directing water that has not been properly disinfected to users.

### F. Notifying Authorities of Adverse Test Results and Other Problems (Regulation, schedule 16)

As soon as you become aware of an adverse test result or if you observe that your drinking-water system is not properly disinfecting water that is being directed to users (see **Box 2b** above), you must:

1. Immediately report it to:
   - The local Medical Officer of Health, by speaking with someone in person or on the telephone, at your local Public Health Unit (see **Chapter 13** in this kit for a list of Public Health Units); and
   - MOE, by speaking with someone in person or on the telephone, at the Spills Action Centre (Tel: 1-800-268-6060 – see **Chapter 11**).

When you report, you must specify the adverse test result or the observation that your drinking-water system has not adequately disinfected water directed to users of the system, and the action or appropriate corrective action that is being taken.

2. You must deliver written notice within 24 hours of giving the immediate verbal notice using a form approved by the MOE Director (see **Chapter 11**). The written notice must indicate the problem and the appropriate corrective action that is being taken. Send the written notice to:

   - The local Medical Officer of Health (see **Chapter 13** in this kit for a listing of Public Health Units);
   - The MOE Spills Action Centre (Tel: 1-800-268-6060 – see **Chapter 11**).

3. You must deliver follow-up written notice within 7 days of resolving the issue that gave rise to the first notice using a form approved by the MOE Director (see **Chapter 11**). The follow-up written notice must summarize the action taken and the results achieved to the local Medical Officer of Health, and the MOE Spills Action Centre.

> **PLEASE NOTE:** small non-residential systems that do not serve a designated facility do not have to comply with section 18 of the SDWA and Schedule 16 of the Drinking-Water Systems Regulation until June 1, 2005.

### G. CORRECTIVE ACTION (Regulation, schedule 18)

In the event that your system experiences an adverse test result or you observe that your system is not properly disinfecting water that is being directed to users, not only must you notify the appropriate people (as described above), but you must also take corrective action to protect the users of your water. There are different types of corrective actions depending on the type of water quality problem you find in your samples.

Schedule 18 of the Drinking-Water Systems Regulation describes different corrective actions required following certain adverse test results or observations of certain problems. These are summarized in **Table 2b**.

## TABLE 2b. CORRECTIVE ACTIONS TO TAKE WHEN ADVERSE TEST RESULTS ARE RECEIVED OR OTHER PROBLEMS ARE OBSERVED (SCHEDULE 18 OF O. REG. 170/03)

| ADVERSE TEST RESULT OR OTHER PROBLEM | WATER USE | TREATMENT | SAMPLING AND TESTING | CONSULT WITH ... |
|---|---|---|---|---|
| **Water not disinfected properly has been directed to users** | Take steps to notify users to use an alternate source of drinking water. | Restore the disinfection. | Minimum daily grab samples or continuous monitoring with alarms. | **Local Medical Officer of Health** |
| **If filtration is required, the turbidity in filter effluent is more than 1.0 NTU** | Take steps to notify users to use an alternate source of drinking water. | 1. Check the filters and monitoring equipment;<br>2. Review and correct upstream processes;<br>3. Follow manufacturer's recommendations for servicing or replace filter cartridges;<br>4. Flush the distribution system and plumbing. | Minimum daily grab samples or continuous monitoring with alarms. | **Local Medical Officer of Health** |
| **If chlorination is used, free chlorine residual is less than 0.05 mg/L in a distribution sample** | Take steps to notify users to use an alternate source of drinking water. | Increase chlorine dose and flush the distribution system and plumbing. | Minimum daily grab samples. | **Local Medical Officer of Health** |
| ***E. Coli* or fecal coliform detected** | Take steps to notify users to use an alternate source of drinking water. | Increase chlorine dose and flush the distribution system and plumbing.[7] | Resample and test. Continue corrective action until *E. Coli* and fecal coliforms are no longer detected in 2 consecutive sets of samples taken 24 to 48 hours apart. | **Local Medical Officer of Health** |
| **Total coliforms (but not fecal coliforms) confirmed upon resample** | Take steps to notify users to use an alternate source of drinking water. | Increase chlorine dose and flush the distribution system and plumbing.[5] | Continue corrective action until total coliforms are no longer detected in 2 consecutive sets of samples taken 24 to 48 hours apart. | **Local Medical Officer of Health** |
| **More than 200 CFU/100 mL (but not fecal coliforms) confirmed on a total coliform membrane filter upon resample** | Consult with **local Medical Officer of Health** on water use. | Increase chlorine dose and flush the distribution system and plumbing.[5] | Continue corrective action until less than 200 CFUs/100 mL are detected in 2 consecutive sets of samples taken 24 to 48 hours apart. | **Local Medical Officer of Health** |

[7] If you are not currently using chlorine, take the corrective action as outlined in the Ministry's *"Procedure for Corrective Action for Systems Not Currently Using Chlorine"* (available on the Ministry's Web site, www.ene.gov.on.ca).

| Adverse Test Result or Other Problem | Water Use | Treatment | Sampling and Testing | Consult with ... |
|---|---|---|---|---|
| **More than 500 CFU/mL (but not fecal coliforms) confirmed on a heterotrophic plate count (HPC) upon resample** | Consult with **local Medical Officer of Health** on water use. | Increase chlorine dose and flush the distribution system and plumbing.[5] | Continue corrective action until less than 500 CFUs/mL are detected in 2 consecutive sets of samples taken 24 to 48 hours apart. | **Local Medical Officer of Health** |
| ***Aeromonas* spp., *Pseudomonas aeruginosa, Staphylococcus aureus, Clostridium* spp., or fecal *streptococci* are confirmed upon resample.** | Consult with **local Medical Officer of Health** on water use. | Increase chlorine dose and flush the distribution system and plumbing.[5] | Continue corrective action until *Aeromonas* spp., *Pseudomonas aeruginosa, Staphylococcus aureus, Clostridium* spp. or fecal *streptococci* are not detected in 2 consecutive sets of samples taken 24 to 48 hours apart. | **Local Medical Officer of Health** |
| **Exceeding a chemical and radiological parameter listed in Schedule 2 or 3 of the Ontario Drinking-Water Quality Standards Regulation (O. Reg. 169/03)** | Consult with **local Medical Officer of Health** on water use. | Consult with **local Medical Officer of Health** on treatment. | Resample and test. | **Local Medical Officer of Health** |
| **Pesticide NOT listed in Schedule 2 of the Ontario Drinking-Water Quality Standards Regulation (O. Reg. 169/03) is detected** | Consult with **local Medical Officer of Health** on water use. | Consult with **local Medical Officer of Health** on treatment. | Resample and test. | **Local Medical Officer of Health** |
| **Exceeding the maximum concentration for a parameter identified under an approval or order as a health-related parameter** | Consult with **local Medical Officer of Health** on water use. | Consult with **local Medical Officer of Health** on treatment. | Resample and test. | **Local Medical Officer of Health** |
| **Sodium concentration exceeds 20 mg/L and a report has not been made in the previous 5 years** | Consult with **local Medical Officer of Health** on water use. | Consult with **local Medical Officer of Health** on treatment. | Resample and test. | **Local Medical Officer of Health** |

**Note:** "resample and test" (defined in the interpretation section of O. Reg. 170/03) for a microbiological parameter means that you must collect and test **at least 3 water samples** for the parameter that caused the adverse water quality. The first sample must be from the same location as the sample that gave rise to the corrective action. The second sample must be from a location that is a significant distance upstream from the location of the adverse result, where reasonably possible, and the third sample must be from a location that is a significant distance downstream from the adverse result, where reasonably possible.

"resample and test" for a parameter that is not a microbiological parameter means that you must collect and test a water sample for the parameter which caused the adverse water quality from the same location as the sample that gave rise to the corrective action.

## H. Warning Notices of Potential Problems (Regulation, schedule 19)

**When is it necessary to post a warning notice?**

You must post a warning notice:

- If you are not presently in compliance with microbiological sampling and testing requirements of Schedules 11 or 12;
- If you did not carry out appropriate corrective action (as specified in **Table 2b** of this kit); and/or
- If you must, as a corrective action, notify all users to use an alternate source of water or to boil the water for at least one minute before using.

**Where to post the warning notice**

- Post the notice in a prominent location where it is likely to be seen by those using water from the system.
- If you fail to post a warning notice at your drinking-water system, a provincial officer or public health inspector may do so.

More information on posting a warning notice and how to obtain free-of-charge notices can be found in **Chapter 6**.

## I. Making Required Information Available (Regulation, section 12)

You must make certain reports and documents available at each drinking-water system, so that interested persons may read them on-site, free of charge, during normal business hours. These include copies of:

- every test result (not older than two years) required by O. Reg. 170/03, or O. Reg. 459/00 or under an approval or order;
- every approval and order issued (not older than two years) that applies to your drinking-water system and that is still in effect, if it was issued after **January 1, 2001**;
- every annual report prepared under Section 11 of O. Reg. 170/03 or under O. Reg. 459/00 or O. Reg. 505/01;
- a copy of O. Reg. 170/03 (Drinking-Water Systems); and
- a copy of every Engineering Evaluation Report.

## J. Submitting an Annual Report (Regulation, section 11)

You must submit an Annual Report using a prescribed format approved by the MOE Director on the operation of your drinking-water system according to the following requirements:

| | *Cover period ...* | *Submit by ...* | *Submit to ...* |
|---|---|---|---|
| **Seasonal Residential** | From November 1st of the previous year through to October 31st of the current year. | December 31st of each year | **Ministry of the Environment**<br>Director, Environmental Monitoring and Reporting Branch<br>125 Resources Rd.<br>Toronto, Ontario M9P 3V6<br>Tel: (416) 235-6300<br>Fax: (416) 235-6235 |
| **Small Non-Residential** | From April 1st of the previous year through to March 31st of the current year. | May 31st of each year | |

See **Chapter 8** in this kit for the prescribed format for the Annual Report.

**First Reports**

- If a seasonal residential system was required to submit a quarterly report under O. Reg. 459/00, the first report is due December 31, 2003 and shall cover the period from April 1, 2003 to October 31, 2003.
- If a new seasonal residential system not subject to O. Reg. 459/00, then the first report is due December 31, 2003 and shall cover the period from June 1, 2003 to October 31, 2003.
- If a small non-residential system was required to submit an annual report under O. Reg. 505/01, the first report is due May 31, 2004 and shall cover the period from August 1, 2002 to March 31, 2004.
- If a small non-residential system was not subject to O. Reg. 505/01, the first report is due May 31, 2006 and shall cover the period from June 1, 2005 to March 31, 2006.

**NOTE:** If your drinking-water system is connected to and receives all of its drinking water from another drinking-water system, the owner of the drinking-water system to which the water is obtained must ensure that the owner of the connected drinking-water system is given a copy of the annual report.

### K. RETAINING REQUIRED REPORTS AND DOCUMENTS (Regulation, section 13)

Drinking-water system owners, laboratories, and schools/day nurseries must keep copies of certain reports and documents on file.

**As a drinking-water system owner, you must keep copies of:**

***For at least 5 years ...***

- Every record or report of test results for microbiological parameters as required under section 7, Schedules 6 to 12, and sections 18-5 to 18-9 of Schedule 18 of the Drinking-Water Systems Regulation (170/03).
- Every record or report related to a test result under an approval or order, unless the record or report relates to an organic or inorganic parameter listed in Schedule 23 or 24 of the Drinking-Water Systems Regulation (O. Reg. 170/03) or a parameter listed in Schedule 3 of the Ontario Drinking-Water Quality Standards Regulation (169/03).
- Every annual report prepared under Section 11 of the Drinking-Water Systems Regulation (170/03).
- Every record of weekly flushing made under the Schools, Private Schools and Day Nurseries Regulation (173/03) (schools/day nurseries only).
- Every record or report of test results for microbiological parameters prepared under section 7 and clause 9(b) of Ontario Regulation 459/00 before the Regulation was revoked on June 1, 2003 or tests prepared under section 7, 8 and 12 of O. Reg. 505/01 before the Regulation was revoked on June 1, 2003.

**As a drinking-water system owner, you must keep copies of:**

- Every annual report prepared under section 12 of Ontario Regulation 459/00 before the Regulation was revoked on June 1, 2003 or reports prepared under section 15 of O. Reg. 505/01 before the Regulation was revoked on June 1, 2003.

***For at least 15 years ...***

- Every record or report of test results for chemical parameters as required by Schedule 14 (Seasonal Residential Systems), 15 (Small Non-Residential Systems) and sections 18-10 to 18-13 of Schedule 18 of the Drinking-Water Systems Regulation.
- Every record or report related to a test result under an approval or order, if the record or report relates to an organic or inorganic parameter listed in Schedule 23 or 24 of the Drinking-Water Systems Regulation (170/03) or a parameter listed in Schedule 3 of the Ontario Drinking-Water Quality Standards Regulation (169/03).
- Every Engineering Evaluation Report prepared under Schedule 21 of the Drinking-Water Systems Regulation.
- Every record or report of test results for chemical parameters prepared under section 7 and clause 9(a) of Ontario Regulation 459/00 before the Regulation was revoked on June 1, 2003 or tests prepared under section 9 of O. Reg. 505/01 before the Regulation was revoked on June 1, 2003.
- Reports prepared under section 5 of O. Reg. 505/01 before the Regulation was revoked on June 1, 2003.
- Every report relating to the drinking-water system's raw water supply prepared under paragraph 7 of subsection 2(2) (written report concluding the system's raw water is ground water under the direct influence of surface water) or subsection 2(3)(a) (written report prepared after August 1, 2000, concluding that the raw water supply is not ground water under the direct influence of surface water).
- If the owner gave the Director a written statement by a professional engineer under subsection 21-2 (3) of Schedule 21, a copy of the OWRA approval referred to in that section.

**NOTE:** If the MOE Director or provincial officer requests your records, you must send them **within the period requested**.

### L. REQUIRED FORMS (Regulation, section 14)

Whether you submit a written notice, post a warning notice or submit a report, you must use a form approved by the MOE Director. Refer to **Chapter 11** for information regarding some of the forms associated with O. Reg. 170/03 (Drinking-Water Systems Regulation).

# 4 SPECIFIC REQUIREMENTS FOR DESIGNATED FACILITIES

This chapter will discuss the special requirements for owners of drinking-water systems that serve designated facilities. The Drinking-Water Systems Regulation (170/03) strengthens the protection of populations that are less resistant to contaminants in drinking water. Populations more sensitive to contaminants include: infants, children, the elderly and those with compromised immune systems. If you are unsure whether this section applies to you, refer to the list of designated facilities below, and the glossary of terms in **Chapter 18**, or section 1 of the Regulation.

Regulation 170/03 defines a designated facility to mean:

- children's camp
- a delivery agent care facility
- a health care facility
- a school or private school
- a social care facility
- a university, a college of applied arts and technology, or an institution with authority to grant degrees

A designated facility could be served by any of the eight categories of drinking-water systems (see **Chapter 1** for more details).

It is likely that most designated facilities would be served by a system in the following category:

- Small non-municipal non-residential system (i.e., a system that is not capable of producing 2.9 litres of drinking water per second)

**NOTE:** If a system serving a designated facility is a large municipal residential system, then the requirements described by this chapter **do not** apply to the system. However, the weekly flushing requirements of O. Reg. 173/03 still apply to the operator of a school, private school or day nursery served by a large municipal residential system.

Once you determine your category of drinking-water system, refer back to **Chapter 2**, "Non-Municipal Year-Round Residential and Large Non-Residential," or **Chapter 3**, "Non-Municipal Seasonal Residential and Non-Municipal Small Non-Residential," of this kit for the details of your responsibilities.

**Table 3** outlines the special requirements that you as a drinking-water system owner that serves a designated facility must ensure are met.

## TABLE 3: SPECIAL REQUIREMENTS FOR NON-MUNICIPAL DRINKING-WATER SYSTEMS THAT SERVE A DESIGNATED FACILITY

| | SPECIAL REQUIREMENTS | DEADLINES |
|---|---|---|
| **Annual Report** Section 11 | You must also submit an annual report (copy) for your drinking-water system to the appropriate interested authority (unless the designated facility is a private school, children's camp or seniors' or retirement home) and to each designated facility. | |
| **Treatment Equipment** Schedule 2 | If your drinking-water system serves a children's camp or a non-profit seniors' or retirement home, you must provide the required treatment equipment at your drinking-water system by July 1, 2004. | **July 1, 2004** |
| | If your drinking-water system serves a designated facility other than a children's camp, non-profit seniors' or retirement home or a school, and the system began operation before December 19, 2001, you must have installed the required treatment equipment at your drinking-water system by July 1, 2003. | **July 1, 2003** |
| | If your drinking-water system serves a school, you must have installed the required treatment equipment at your drinking-water system by June 1, 2003. | **June 1, 2003** |
| | Systems serving designated facilities are not required to provide the Ministry with written notification of the system owner's intentions regarding provision of treatment equipment (Schedule 2). However, a system serving a designated facility may still apply for relief from the requirements for provision of treatment equipment under Schedule 5 if the system has a raw water supply that is ground water. | |
| **Operational Checks, Sampling and Testing – General** Schedule 6 | Regulatory exemptions only apply to a system that serves a designated facility if the system and all of the buildings served by the system do not use electricity and that system posts warning notices according to section 8 of the Regulation. | **N/A** |
| | If you use an automatic system to sample and test your water system, an alarm must sound **at each of the designated facilities** served by the system and the alarms must also be sent to an appropriate person who can promptly dispatch someone to respond to the alarm. Alarms must be triggered when:<br>♦ Equipment malfunctions;<br>♦ Equipment loses power; or<br>♦ Test results for a parameter is above the maximum alarm standard or below the minimum alarm standard | **At all times** |
| **Operational Checks** Schedule 9 (section 9-7) | Section 9-7 of Schedule 9 (allows owners of small non-residential drinking-water systems two years before they are required to perform the mandatory operational checks) does not apply to you as an owner of a drinking-water system that serves a designated facility.<br>As of June 1, 2003, you must have begun to perform the mandatory operational checks as discussed in **Chapters 2 and 3**. | |

| | SPECIAL REQUIREMENTS | DEADLINES |
|---|---|---|
| **Micro-biological Testing** Schedule 12 (section 12-6) | Section 12-6 of Schedule 12 (allows owners of small non-residential drinking-water systems two years before they are required to perform the mandatory microbiological testing) does not apply to you as an owner of a drinking-water system that serves a designated facility.<br>As of June 1, 2003 you must have begun to perform the mandatory microbiological tests as discussed in **Chapters 2 and 3**. | |
| **Chemical Testing** Schedule 15 (section 15-9) | Section 15-9 of Schedule 15 (allows owners of small non-residential drinking-water systems two years before they are required to perform the mandatory chemical testing) does not apply to you as an owner of a drinking-water system that serves a designated facility. However, if you have already taken tests for chemical parameters under O. Reg. 505/01, then the next set of tests required are based on the required frequencies dating back to the original set of tests. If your system serves a children's camp, or another designated facility and no tests were previously taken under O. Reg. 505/01, then you have until June 1, 2004 to carry out these tests. | |
| **Operational Checks** Schedules 8 & 9 | Sections 8-2, & 9-2 [Check of Treatment Equipment]<br>Sections 8-3 & 9-3 [Chlorine Residual]<br>Sections 8-4 & 9-4 [Turbidity]<br>These operational checks are not required on days when all designated facilities and public facilities served by the system are not open. | |
| **Notifying Appropriate People/ Agencies About Adverse Test Results or Other Problems** Schedule 16 (sections 16-5, 16-6, 16-7, 16-9) | If your water samples show adverse test results or there is an observation that water that has not been properly disinfected is directed to users, you must also report by speaking in person or by telephone to the operator of the designated facility that serves the drinking-water system (unless you are also the operator of the designated facility and the owner of the water works). | **Immediately** |
| | If a school, private school or day nursery is closed at the time when notice is required to be given to the operator of the designated facility, notice must be given before the school or nursery is re-opened. | |
| | If reporting is required following an adverse test result or other problem, you must also deliver written notice to the appropriate interested authority (unless your designated facility is a private school, children's camp or seniors' or retirement home) within 24 hours of giving verbal notice. | **Within 24 hours** |
| | If reporting is required following an adverse test result or other problem, you must also deliver a follow-up written notice, which summarizes the action taken using a form approved by the MOE Director and the results achieved, to the appropriate interested authority within 30 days. | **Within 30 days** |

| | Special Requirements | Deadlines |
|---|---|---|
| **Warning Notices of Potential Problems** Schedule 19 | You must post a warning notice of potential problems at each designated facility any time:<br>(1) You are required, as a corrective action step, to notify users to seek an alternate source of water or boil the water before use;<br>(2) You are not taking or have not taken the appropriate corrective action;<br>(3) You are not presently meeting the regulatory requirements for sampling and analysis of microbiological parameters.<br>Warning notices must be posted:<br>♦ at every entrance to every building and every structure that is part of the facility; or<br>♦ if the facility does not have any building or structure, at a location where they are likely to come to the attention of all persons who enter the facility<br>If you are the owner of the drinking-water system and you do not own the designated facility you must ensure that the operator of the facility is provided with:<br>♦ sufficient copies of the warning notices<br>♦ instructions to post the warning notices<br>**Note:** If you fail to post a warning notice at your drinking-water system, a provincial officer, public health inspector or officer of the interested authority may also post the notices. | **Immediately** |
| **Engineering Evaluation Report** Schedule 21 | Within 7 days after the Engineering Evaluation Report is required you must provide written notice to the interested authority for each designated facility (unless your drinking-water system serves a private school, children's camp or seniors' or retirement home) that includes a copy of the opinion of the professional engineer. | |

**Please Note:** Flushing is still required but is covered under Ontario Regulation 173/03 (see below).

**When is a designated facility considered open?**

Section 3 of O. Reg. 170/03 states that:

- a school or private school is open on a day if, at any time during that day, programs for children under 18 years of age are held at the school or private school

- a designated facility other than a school or private school is open on a day if, at any time during that day, any of the persons that the facility serves, cares for or provides programming for are present at the facility
- a place that is both a designated facility and a public facility is open on a day when either the designated facility or the public facility is open.

**Flushing for Lead – Ontario Regulation 173/03** (Schools, Private Schools and Day Nurseries Regulation)

If you are the operator of **a school, private school, or day nursery**, you must perform routine flushing of the plumbing for lead on at least a weekly basis, as required under the Schools, Private Schools and Day Nurseries Regulation.

NOTE: The flushing requirements apply to **all** schools, private schools, and day nurseries in Ontario, **including** those that are served by large municipal residential systems.

Operators of these designated facilities must ensure that:

- at a minimum the water in the plumbing is flushed on the first day of each week the school, private school or day nursery is open;
- the flushing continues until the temperature of the water stabilizes;
- the flushing is completed before the school, private school or day nursery opens for the day; and
- a record is made of the date and time of every flushing, and the name of the person who performed the flushing (records must be kept for at least 5 years).

Flushing is intended to ensure that users do not consume stale water from commonly used points of water consumption at the designated facility. To achieve this, the operator may flush the plumbing by opening the last cold-water tap on each branch or each run of pipe in the plumbing, or by opening every fixture where water is commonly taken for drinking or food preparation purposes. The temperature of the water should stabilize within a couple of minutes; however, as a minimum, you should make sure that the water is run vigorously for at least one minute.

Although flushing is required by the Regulation on a minimum weekly basis, flushing for lead should be done on a more frequent basis wherever there may be lead-related risks and where water that is used for drinking or food preparation has been standing for more than 5 hours. Flushing of selected fixtures is recommended on a daily basis if the operator of the designated facility has reason to believe that there may be higher risks of lead in the drinking water because of factors such as the age of the plumbing (pre-1989), the age of the users at the facility (especially young children), or previous test results that have indicated any evidence of lead in the water supplied by the system.

# 5 RELIEF FROM REQUIREMENTS FOR PROVISION OF TREATMENT EQUIPMENT

This chapter provides owners of a non-municipal drinking-water system that obtains water from a ground water source with information on how to apply for relief from all treatment requirements, if eligible (requirements for provision of treatment equipment are found in Schedule 2 of the Regulation).

**NOTE:** You may not apply for relief from all treatment equipments requirements of Schedule 2 if you:

(1) are the owner of a drinking-water system that obtains water from a raw water supply that is surface water;

OR

(2) are the owner of a drinking-water system that obtains water from a raw water supply that is ground water under the direct influence of surface water (GUDI).

> Approvals for relief from all treatment requirements of Schedule 2 are valid for only **5 years**.
>
> You must apply for an extension of your approval every **5 years**.

In all cases, in order to receive approval for relief from any treatment requirements, you must demonstrate to the Ministry that the safety of the drinking water provided by your system meets acceptable risk-based standards.

**How To Apply**

Drinking-water system owners who wish to apply must obtain the services of a professional engineer in order to make the necessary assessments required by the application. The engineer must follow the MOE "Guide for Applying for Approvals Related to Municipal and Non-Municipal Drinking-Water Systems," and must complete the appropriate application forms along with the other required submissions. Guides and forms are available on the Ministry Web site at www.ene.gov.on.ca.

Submissions or activities that are required to be carried out by the engineer as part of an application process include:

- a written statement that confirms that he or she has requested all information related to the drinking-water system from the local health unit, has consulted with the Medical Officer of Health about potential health issues or concerns related to the drinking-water system, and has set out in the statement any issues or concerns raised

- a characterization of the drinking-water system's raw water supply that includes a minimum of 24 months microbiological sample history, a statement concluding that there are no significant and rapid shifts in chemical and physical characteristics that indicate surface water influence (i.e., pH, turbidity, temperature, nitrate, nitrite, and conductivity), and copies of any other records that show past evidence of surface-water contamination (i.e., presence of viruses, chlorophyll a, protozoan cysts, macro-organisms)

- surveys and analyses prepared by or under the supervision of the engineer that deal with the potential risks of microbiological contamination related to each of the following:

  - well construction and well-head protection;
  - the well-head vicinity and recharge zone; and
  - distribution system and plumbing

- a proposed management plan prepared by or under the supervision of the engineer that provides guidance for operations related to preventing, reducing and managing microbiological risks including the following components:

  (1) Operating Procedures relating to the maintenance activities at the start of an operating season and relating to routine flushing and disinfecting activities. You must also include written operating procedures relating to increased monitoring activities after adverse weather events such as heavy rainfall or floods;

  (2) Logs relating to samples taken (include location, sample times, signatures, and test results);

  (3) Protocol for Notification (and Contact List) that clearly describes the steps to notify the users of the system, MOE, and Medical Officer of Health upon adverse events and the importance of keeping contact lists up to date;

  (4) Procedure for Corrective Action upon adverse events that is consistent with the Ministry procedure entitled, *"Procedure For Corrective Action for Systems Not Currently Using Chlorine"*; and

  (5) Procedure for Making Records in order to summarize any corrective actions taken, the results of the corrective action, and the resolution of the issues that gave rise to the corrective actions.

**Public Consultation**

Before a drinking-water system owner can apply for relief from all treatment requirements he or she must also ensure that **public consultation** is conducted. In order to carry out the public consultation, the system owner must ensure that the occupants of all private residences and designated facilities, as well as the operators of designated and public facilities, and all other premises served by the system are notified of the application and given reasonable opportunity to make comments. A written summary of those comments and responses must also be prepared before the application for relief is made to the Ministry.

# 6 WARNING NOTICE OF POTENTIAL PROBLEMS

This chapter provides you with detail on when you must post warning notices of potential problems with the drinking water in your system, where the notices must be posted and what they should look like.

**When must you post warning notices of potential problems?**

Post the warning notices if:

- You are required to take a corrective action step according to Schedule 18 that specifies that you must ensure that all users are notified to use an alternate source of drinking water or to bring water to a rapid rolling boil for at least one minute before use (Notice A)
- You are not presently in compliance with the corrective action requirements of Schedule 18 (Notice A)
- You are not presently in compliance with microbiological sampling and testing requirements of Schedules 11 or 12 (Notice B)

**NOTE:** Posting of warning notices of potential problems does not exempt you from having to comply with all of the requirements of the *Safe Drinking Water Act* or the Drinking-Water Systems Regulation.

**Where must you post the warning notices of potential problems?**

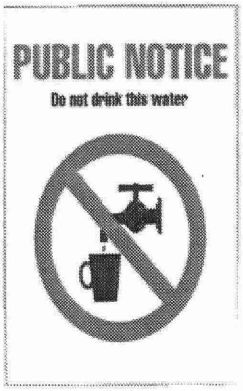
Post the warning notices in prominent locations where they are likely to come to the attention of users of water from the system.

If the system serves a designated facility, warning notices must be posted at every entrance to every building and structure that is part of a designated facility.

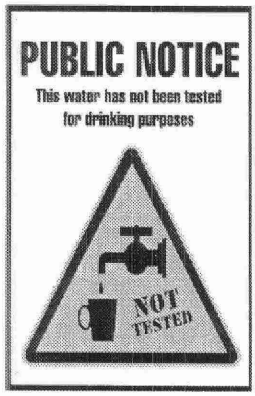
**What must the warning notices of potential problems say?**

Warning notices must be in a form provided by or approved by the Director. There are two warning notices available from the Ministry of the Environment for the purposes of posting warning notices of potential problems. The proper notice must be used according to the specific situation, as outlined above. You may also wish to indicate where an alternate source of drinking water can be obtained, if applicable.

NOTICE A – Do Not Drink




NOTICE B – Not Tested




Also see **Chapter 11** of this kit.

**Where to obtain a warning notice**

Contact the MOE's Public Information Centre at 1-800-565-4923 or (416) 325-4000.

# 7 EXEMPTIONS FROM REGULATION (SECTION 8)

If you are the owner of one of the following drinking-water systems, you may be exempt from regulatory requirements if warning notices are posted in accordance with section 8 of the Regulation:

1. Your drinking-water system does not use electricity and does not serve any building or other structure that uses electricity, or
2. Your drinking-water system is a small non-municipal non-residential system and does not serve any designated facilities or food premises that rely on the system for the supply of potable water (under the Food Premises Regulation, Regulation 562).

If you intend to post warning notices to be exempt from regulatory requirements, you must submit a written notice to the MOE Director by December 31, 2004 on the approved form (see **Chapter 11**).

**NOTE:** Posting warning notices according to section 8 of the Drinking-Water Systems Regulation does not relieve any person of any obligation to provide potable water that meets, at a minimum, the Ontario Drinking-Water Quality Standards. Such obligations or requirements to supply potable water may be found in other pieces of legislation that apply to your system.

## Section 8 Warning Notice Requirements

As the owner of a drinking-water system specified above, you must ensure that the following items are carried out in order for the regulatory exemptions to apply:

- All drinking water fountains that are connected to the system must be rendered inoperative;
- Warning notices must be posted at every tap that supplies water from the drinking-water system in a location where it is likely to come to the attention of all users and potential users of the system;
- A larger warning notice must be posted at every entrance to every building and every structure that is served by the drinking-water system, or if there are no buildings, in a location where it is likely to come to the attention of all users and potential users;
- Warning notices must be in a form provided by or approved by the Director;
- Warning notices must be checked at least once a week to ensure that they are legible and comply with section 8 of the Regulation; and
- Records must be made of the date and time, and name of the person who performs each check, and these records must be kept for at least five years convenient to inspection.

The MOE Director must be notified in writing, using the form approved by the MOE Director (see **Chapter 11**) that the steps described above have been taken.

## Sunset Dates

If you are the owner of a small non-municipal non-residential drinking-water system according to paragraph 2 above that uses electricity, there are sunset dates by which you are required to begin to test and treat your water. Following the prescribed sunset dates listed below, you will be required to comply with all the requirements of the Drinking-Water Systems Regulation unless your system falls into one of the following categories:

1. The system only supplies water to a public washroom or shower

2. The only user served by the system is a user described in clause 2 (1) (c) of the Food Premises Regulation, Regulation 562 (i.e., churches, service clubs, or fraternal organizations that only conduct bake sales or only serve meals to their members and personally invited guests)

The sunset date for systems that have a raw water supply that is surface water is **July 1, 2008.**

The sunset date for systems that have a raw water supply that is ground water is **December 31, 2009.**

**NOTE:** Following these sunset dates, you must comply with all the requirements of the Drinking-Water Systems Regulation (unless otherwise specified above), including all testing and treatment requirements outlined in **Chapters 2 and 3** of this kit.

# 8 TEMPLATE FOR THE ANNUAL REPORT

## ANNUAL DRINKING-WATER REPORT

As discussed in Chapters 2 and 3, the Drinking-Water Systems Regulation requires that all regulated drinking-water systems submit an annual report. To make the preparation of this report as easy as possible, the Ministry prepared an Annual Report template which is available on the Ministry's Web site at www.ene.gov.on.ca.

The following is a summary of the type of information you will need to complete the Ministry's Annual Report Template:

- Information on your drinking-water system (i.e., name and address of the drinking-water system and the name and address of the owner of the drinking-water system, the category of the drinking-water system, the name of the local Public Health Unit, the population being served, designated or public facilities served and the pumping capacity);
- Information on your drinking-water source (ground water, surface water or ground water under the direct influence of surface water);
- Information on the number of adverse test results during the reporting period for microbiological, chemical, chlorine residual and turbidity;
- Summary of microbiological and chemical results;
- Information on parameters not required during the reporting period;
- Information on additional testing and sampling carried out in accordance with the requirement of an approval or an order;
- Information on major expenses incurred during the period covered by the annual report (such as the cost of treatment equipment, instrumentation for measuring chlorine levels, etc.); and
- Information on how the Annual Report was shared with drinking-water users. For example, a copy of the Annual Report was given to every person who requested it.

**PLEASE NOTE:** You must use the Ministry's Annual Report Template and send the report electronically to the Ministry. See **Chapter 11** for more details.

# 9 HOW TO COLLECT WATER SAMPLES

The following is only a general overview on sample collection, handling, storage and transport. Ensure that when contracting each laboratory to analyse your samples, you obtain specific directions on these issues from the laboratory staff. In some cases, the laboratory may also provide sample collection services as well.

## Purpose of collecting water samples

As a system owner, you are required by the Drinking-Water Systems Regulation to ensure that water samples are taken from your system and tested for certain microbiological parameters, as well as certain organic and inorganic chemical parameters. You must also choose a laboratory that is accredited to test water samples for the parameters you require. After October 1, 2003, you will be required to choose a laboratory that is licensed by the Ministry of the Environment. Water samples are required for several reasons:

- To provide a level of assurance that the drinking water supplied by your system is safe to drink;
- To meet regulatory requirements;
- To determine changes in the quality of your source water (these changes will help you operate the system efficiently in the future);
- To determine the effectiveness of the treatment process, especially disinfection;
- To make operational changes (for example, change the solution strength, feed pump rate, etc.);
- To document the quality of your water supply; and
- To enable you to properly respond to customer complaints.

## Sample Handling – General

As the owner of the drinking-water system, you are required by the Regulation to ensure that samples are collected properly. Make sure that all the people who are collecting water samples from your system understand clearly that they must carefully follow the directions of the laboratory, including:

- Collection procedures;
- The use of specified kinds of containers, or containers that are provided by the laboratory;
- The labelling of samples;
- The completion and submission of forms, including chain-of-custody forms that are provided by the laboratory;
- Methods of transporting samples, including temperature conditions that must be maintained during transportation; and
- Time periods for delivery of samples.

It is critical that water samples are collected as specified by the laboratory. Otherwise, inaccurate analyses may create false positive results and unnecessary notifications and corrective actions.

*Your test results are only as good as your sample!*

## Where to take samples

In all cases, collect the samples from the location or point(s) stipulated in the Drinking-Water Systems Regulation.

Where the regulation states that "distribution samples" must be taken, you must ensure that these samples are representative of the whole system and taken from locations that are typical for your system. Distribution samples can be taken from distribution lines, but also can be taken from plumbing lines or fixtures where you have adequate access and where such locations are typical of your system.

Distribution samples must be taken from points significantly beyond the point at which drinking water enters the distribution system or plumbing. However, for a small system (e.g., a system serving a single building), locations that are representative of the whole system may include some sampling locations that are close to the point where plumbing enters the building. These locations are acceptable.

When identifying sampling locations that are representative of the system, consideration must also be given to other characteristics that are unique to your system such as patterns of system usage, locations of storage tanks, dead-ends, stagnant lines, ageing water mains, extremities of the system, etc., especially locations where the degradation of water quality and disinfection residual are possible. The objective is to measure the quality of water being supplied to the consumer.

## Chlorine residual test with microbiological distribution samples

If the system is currently using chlorination or chloramination and the sample is a distribution system sample, taken for microbiological testing, you must ensure that the chlorine residual is tested at the same time as sample collection and at the same location from which the sample is collected. Record the chlorine residual on the microbiological sample submission forms and on the bottle provided by the laboratory, if specific directions for recording are not provided by the laboratory.

## Records

The date and time the sample was taken, the location where the sample was taken, and the name of the person who took the sample must be recorded for water samples required by the Drinking-Water Systems Regulation. These records must be kept for at least 5 years if the records relate to microbiological samples and for at least 15 years if the records relate to chemical samples. In addition, the laboratory must provide you with chain-of-custody forms which must be filled out and submitted to the laboratory with the samples.

## General Sampling Guidance

**NOTE:** This general sampling guidance should only be followed where detailed laboratory instructions have not been provided or are not available. Where instructions from your laboratory are inconsistent with this general guidance, you must follow the directions of the laboratory to ensure accurate test results.

### Testing for microbiological parameters

This involves the analysis of certain indicator bacteria (*E. Coli*, total coliforms and heterotrophic bacteria). If directions from the laboratory differ from the guidance below, please follow the directions of the laboratory.

Sample collection

- Always ensure a clear pathway from the source to the sample collection point by removing aerators, tap screens, hoses, filters, etc., from any tap used during sample collection.
- Always allow the water to run for at least two minutes before collecting drinking-water samples.
- Always use the sampling bottles provided by the laboratory. These will be sterile bacteriological sampling bottles containing the preservative sodium thiosulphate. If these bottles have tamper-proof seals and the seal has been broken, consider the bottle contaminated and request that the laboratory provide a new bottle.

**NOTE**: The purpose of the preservative in the sampling bottles is to prevent the collected water quality from degrading so that it no longer accurately reflects the quality of the water in your system. *Do not touch or handle* the preservative. *Do not rinse* the containers, as this will remove some or all of the preservative, and ruin the sample. Do not touch the inside of the sampling container or cap with your fingertips. The inside of the cap and container should not come into contact with anything other than the atmosphere and the collected sample. Cap the bottle immediately after sample collection. Ask the laboratory for further instructions if necessary.

Sample handling and storage

- To prevent significant changes in target bacterial populations, the samples should be chilled to about 4°C while awaiting transport to the laboratory. (The low temperature slows growth and helps to maintain the target bacterial population at the level that existed at the time of sample collection.)
- Submit samples to the laboratory as quickly as possible after collection. The laboratory will provide you with information concerning the timeframe within samples must be received.
- For transport to the laboratory, place samples in coolers or in foam pack containers with ice or ice packs. Do not pack the bottles with loose ice as this may contaminate the sample. If loose ice must be used, the ice should be encased in waterproof packaging or a sealed container.
- Do not allow samples to freeze. Some courier companies offer heated shipping in the winter months.

**Testing for organic parameters**

Organic chemistry is the chemistry of carbon compounds; therefore, in general, organic parameters are compounds containing carbon. Typical chemical compounds defined as organic include pesticides, petroleum products, polychlorinated biphenyls (PCBs), phenols, chlorinated or non-chlorinated solvents, etc. Organic compounds can be liquid, solid or gaseous. Some dissolve or mix with water and others do not. If directions from the laboratory differ from the guidance below, please follow the directions of the laboratory.

Sample collection

- Take considerable care when collecting these samples as contamination may occur from the outside of the sample containers and other materials such as gloves. (The unstable nature of many organic compounds requires strict adherence to sampling protocols, including the use of proper sample containers and preservatives if recommended.)
- Use sampling bottles provided by the laboratory. For most organic compounds a glass container is necessary. Some organic compounds are light-sensitive and require brown glass containers or storage away from light. The laboratory will provide this direction.
- Sample volume is a major consideration when collecting organic samples; in most cases, a relatively large sample size (500 to 1000 mL) is required.

Sample collection for volatile organic compounds

- For samples which require analysis for volatile components (i.e., benzene, toluene, etc.), collect the samples in a manner in which no headspace (air pocket) is left in the bottle.
- To eliminate headspace, fill the container slowly to overflowing, avoiding any mixing or shaking.
- Place the cap on the bottle while the sample is overflowing, or fill sample slowly until there is a convex meniscus (dome) of water extending higher than the top of the container. Cap carefully; a small amount of sample may be lost when capped. Once capped, turn the bottle upside down. No air bubble should be present.

Sample handling and storage

- Submit samples to the laboratory as quickly as possible after collection, or as directed by the lab.
- If the samples must be stored, then keep them refrigerated.
- Ship samples as early in the week as possible because there is no guarantee that couriers will store them in a refrigerator over a weekend.
- Many organic compounds break down or undergo transformations when subjected to light or in the presence of bacteriological activity or chlorine. Light sensitive organic compounds must be collected and submitted in brown glass containers. (Be sure to get clear instructions from the laboratory[s].)

**Testing for inorganic parameters**

Laboratories generally require one or more bottles for what they term *general chemistry testing* and a separate bottle for metals testing, because a preservative is required to stabilise the metals in the sample. If directions from the laboratory differ from the guidance below, please follow the directions of the laboratory.

General chemistry

These tests include nutrients (nitrate, nitrite) and ions such as fluoride or sodium. For the most part, these tests are performed on water samples to assess the overall quality of the water.

Metals

This group includes commonly known elements such as iron, copper, lead, mercury and manganese.

Sample collection

- Use the sampling bottles provided by the laboratory. If the bottle contains a preservative, *do not touch or handle* the preservative. *Do not rinse* the containers, as this will remove some or all of the preservative, reducing the accuracy of the test results. Do not allow the sample bottle to overflow or the preservative will be diluted. Ask the laboratory for further instructions if necessary.
- It some cases, such as when strong acid is used to preserve the sample, the laboratory may direct you to add the preservative after taking the sample. It is very important that you follow this direction if provided. It will make a difference to the accuracy of the results.
- Fill all sampling bottles to the shoulder.
- In general, inorganic compounds are sampled in plastic containers, although glass containers may be used for some tests such as mercury.

Sample handling and storage

- Submit samples to the laboratory as quickly as possible after collection.
- If the samples must be stored, then keep them refrigerated.
- Ship samples as early in the week as possible because there is no guarantee couriers will store them in a refrigerator over a weekend.

For more information, see the Ministry's document *"Practices for the Collection and Handling of Drinking-Water Samples"* – available on the Ministry's Web site at www.ene.gov.on.ca.

# 10 COMPLIANCE CALENDAR FOR PERIODIC MONITORING AND REPORTING REQUIREMENTS

**Periodic monitoring and reporting requirements for non-municipal drinking-water systems subject to O. Reg. 170/03 (Drinking-Water Systems)**

| | Monitoring Water Quality and Proper Functioning Of Equipment | Preparing and Receiving Records/Reports | Distributing and Retaining (On-file) Reports/Records |
|---|---|---|---|
| At least once a day (all non-municipal systems) | **Measure free chlorine residual or combined chlorine residual (if using chlorination or chloramination)**<br>**Primary Disinfection (Chlorination)**<br>♦ Ensure that a water sample is taken and tested immediately for free chlorine residual at least once every day in the treatment process at the end of contact time in accordance with the Ministry's *"Procedure for Disinfection of Drinking Water in Ontario."*<br>**Secondary Disinfection**<br>♦ Ensure that a distribution sample is taken at least once every day and is tested immediately for free chlorine (if system provides chlorination) or combined chlorine residual (if the system provides chloramination).<br>(Reg. Schedules 8 and 9) | ♦ For each sample, make a record of the date and time the sample was tested, the name of person who performed the test and the test results.<br>(Reg. Schedule 6) | ♦ Keep every record made on free chlorine residual or combined chlorine residual tests for at least 5 years.<br>(Reg. Section 13) |

**Periodic monitoring and reporting requirements for non-municipal drinking-water systems subject to O. Reg. 170/03 (Drinking-Water Systems)**

| | MONITORING WATER QUALITY AND PROPER FUNCTIONING OF EQUIPMENT | PREPARING AND RECEIVING RECORDS/REPORTS | DISTRIBUTING AND RETAINING (ON-FILE) REPORTS/RECORDS |
|---|---|---|---|
| **Surface Water Using Filtration**<br>Continuously, if using continuous monitoring equipment<br>At least once a day if not required to use continuous monitoring equipment<br><br>**Other**<br>At least once per month if year-round residential or large non-residential | **Measure turbidity**<br>**Year-Round Residential or Large Non-Residential**<br>Surface Water Using Filtration<br>♦ If continuous monitoring equipment is required, ensure the sampling and testing for turbidity is conducted by continuous monitoring equipment on each filter effluent line.<br>♦ If continuous monitoring is not required, at least one sample per day shall be taken and tested for turbidity on each filter effluent line.<br><br>Other<br>♦ At least one sample per month must be taken and tested for turbidity before the raw water enters the treatment system.<br><br>**Seasonal Residential or Small Non-Residential**<br>Surface Water Using Filtration<br>♦ If continuous monitoring equipment is required, ensure the sampling and testing for turbidity is conducted by continuous monitoring equipment on each filter effluent line.<br>♦ If continuous monitoring is not required, at least one sample per day shall be taken and tested for turbidity on each filter effluent line. | ♦ For each sample, make a record of the date and time the sample was tested, the name of person who performed the test and the test results. | ♦ Keep every record made on turbidity tests for at least 5 years. |
| | (Reg. Schedules 8 and 9) | (Reg. Schedule 6) | (Reg. Section 13) |

**Periodic monitoring and reporting requirements for non-municipal drinking-water systems subject to O. Reg. 170/03 (Drinking-Water Systems)**

| | Monitoring Water Quality and Proper Functioning Of Equipment | Preparing and Receiving Records/Reports | Distributing and Retaining (On-file) Reports/Records |
|---|---|---|---|
| **Year-Round Residential or Large Non-Residential**<br>Twice a week if not chlorinating or chloraminating<br>Once a week if chlorinating or chloraminating<br>**Seasonal Residential and Small Non-Residential**<br>Once every two weeks if chlorinating or chloraminating<br>Once a week if not chlorinating or chloraminating | **Test for microbiological parameters in treated water**<br>Collect treated samples from the distribution system or plumbing. Send samples to a lab accredited for testing (i) total coliforms, and (ii) *E. Coli* or fecal coliforms, and (iii) HPC.<br>(Reg. Schedules 11 and 12) | ♦ Receive a report from the lab of the analytical results. The lab must send the report within 28 days after analyzing a sample.<br>(Reg. Schedule 6) | ♦ Provide each designated facility served by your drinking-water system with a copy of every report given to you by the lab.[8]<br>♦ Keep every report given to you by the lab on analytical results for at least 5 years.<br>(Reg. Section 13) |
| Once a week (all non-municipal systems that serve a school, private school or day nursery) | **Operators of a school, private school or day nursery must perform flushing of the plumbing for lead (on the first day the school, private school or day nursery is open each week)**<br>(Schools, Private Schools and Day Nurseries Regulation) | ♦ Make a record of the date and time of every flushing, and the name of the person who performed the flushing.<br>(Schools, Private Schools and Day Nurseries Regulation) | ♦ Keep records made of weekly flushing for at least 5 years<br>(Schools, Private Schools and Day Nurseries Regulation) |

[8] Copies of required reports must be made available at each designated facility served by the system so that interested persons may read them, free of charge, during normal working hours (e.g., 9 a.m. to 5 p.m.).

**Periodic monitoring and reporting requirements for non-municipal drinking-water systems subject to O. Reg. 170/03 (Drinking-Water Systems)**

| | MONITORING WATER QUALITY AND PROPER FUNCTIONING OF EQUIPMENT | PREPARING AND RECEIVING RECORDS/REPORTS | DISTRIBUTING AND RETAINING (ON-FILE) REPORTS/RECORDS |
|---|---|---|---|
| Once a week (all non-municipal systems that are posting warning notices in lieu of treatment and testing) | **Weekly Checks of Warning Notice**<br>♦ Ensure that you perform weekly checks of your warning notice to ensure that it is legible and is in compliance with O. Reg. 170/03.<br>(Reg. Section 8) | ♦ Make a record of the date and time of every weekly check, and the name of the person who performed the weekly check.<br>(Reg. Section 8) | ♦ Keep every record for at least 5 years.<br>(Reg. Section 8) |
| Frequency specified in maintenance schedule of Engineer's Evaluation Report (all non-municipal systems) | **Check of Treatment Equipment**<br>♦ Ensure that a certified operator or trained person checks all water treatment equipment to confirm that it is functioning properly.<br>(Reg. Schedules 8 and 9) | ♦ For each equipment check, make a record of the date and time, the name of the person who performed it, and the results.<br>(Reg. Schedules 8 and 9) | ♦ Keep every record of an Operational Check made for at least 5 years.<br>(Reg. Section 13) |
| Once a month (all non-municipal systems) | **Test for coliforms in raw water**<br>♦ Collect raw water samples from the untreated water source; and IF using ground water, then from each well.<br>♦ Send samples to a lab accredited for testing (i) total coliforms and (ii) *E. Coli* or fecal coliforms.<br>(Reg. Schedules 11 and 12) | ♦ Receive a report from the lab of the analytical results. The lab must send the report within 28 days after analyzing a sample.<br>(Reg. Schedule 6) | ♦ Provide each designated facility served by your drinking-water system with a copy of every report given to you by the lab.[8]<br>♦ Keep every report given to you by the lab on analytical results for at least 5 years.<br>(Reg. Section 13) |
| Every 3 months (all non-municipal systems) | **Test for nitrate/nitrite and trihalomethanes (only for systems that chlorinate or chloraminate)**<br>NOTE: Only year-round residential or large non-residential need to test for trihalomethanes<br>Collect samples from the point where water enters the distribution system or plumbing (except trihalomethanes [THMs] the sample must be taken from a point in the distribution system that is likely to have an elevated potential for the formation of THMs). Send samples to a lab accredited for testing.<br>(Reg. Schedules 13, 14, and 15) | ♦ Receive a report from the lab of the analytical results. The lab must send the report within 28 days after analyzing a sample.<br>(Reg. Schedule 6) | ♦ Provide each designated facility served by your drinking-water system with a copy of every report given to you by the lab.[8]<br>♦ Keep every report given to you by the lab on analytical results for at least 15 years.<br>(Reg. Section 13) |

**Periodic monitoring and reporting requirements for non-municipal drinking-water systems subject to O. Reg. 170/03 (Drinking-Water Systems)**

| | Monitoring Water Quality and Proper Functioning Of Equipment | Preparing and Receiving Records/Reports | Distributing and Retaining (On-file) Reports/Records |
|---|---|---|---|
| Once a year (all non-municipal systems) | ♦ Not applicable | ♦ Prepare annual report<br><br>(Reg. Section 11) | ♦ Send annual report to:<br>1. Electronically to the Ministry;<br>2. The interested authority for each designated facility[9]; and<br>3. Every person who requests a copy.<br>♦ Provide each designated facility served by your water works with a copy.<br>♦ Keep copies of the annual report for at least 5 years.<br><br>(Reg. Section 13) |
| Once a year (year-round residential and large non-residential)<br><br>Every 5 years (seasonal residential and small non-residential) | **Test for lead**<br><br>♦ Collect samples from the point in the distribution system that is likely to have an elevated concentration of lead. Send samples to a lab accredited for testing.<br><br>(Reg. Schedules 13, 14, and 15) | ♦ Receive a report from the lab of the analytical results. The lab must send the report within 28 days after analyzing a sample.<br><br>(Reg. Schedule 6) | ♦ Provide each designated facility served by your drinking-water system with a copy of every report given to you by the lab.[8]<br>♦ Keep every report given to you by the lab on analytical results for at least 15 years.<br><br>(Reg. Section 13) |
| **Year-Round Residential and Large Non-Residential**<br>Once a year (surface water source) | **Test for all parameters listed in Schedules 23 and 24 of the Drinking-Water Systems Regulation**<br><br>♦ Collect samples from the point where water enters the distribution system or plumbing. Send samples to a lab accredited for testing. | ♦ Receive a report of analytical results from the lab. The lab must send the report within 28 days after analyzing a sample. | ♦ Provide each designated facility served by your drinking-water system with a copy of every report given to you by the lab.[8]<br>♦ Keep every report of analytical results given to you by the lab |

[9] If the designated facility is a private school, a children's camp, or a private seniors' residence/retirement home, then you do not have to send an annual report to the interested authority.

**Periodic monitoring and reporting requirements for non-municipal drinking-water systems subject to O. Reg. 170/03 (Drinking-Water Systems)**

| | Monitoring Water Quality and Proper Functioning Of Equipment | Preparing and Receiving Records/Reports | Distributing and Retaining (On-file) Reports/Records |
|---|---|---|---|
| Every 3 years (ground water source) | | | for at least 15 years. |
| **Seasonal Residential and Small Non-Residential (if the system serves a designated facility)** | | | |
| Every 5 years | (Reg. Schedules 13, 14, and 15) | (Reg. Schedule 6) | (Reg. Section 13) |
| Every 5 years (all non-municipal systems) | **Test for sodium and fluoride**<br>Collect samples from the point where water enters the distribution system or plumbing. Send samples to a lab accredited for testing. | ♦ Receive a report from the lab of the analytical results. The lab must send the report within 28 days after analyzing a sample. | ♦ Provide each designated facility served by your drinking-water system with a copy of every report given to you by the lab.[8]<br>♦ Keep every report given to you by the lab on analytical results for at least 15 years. |
| | (Reg. Schedules 13, 14, and 15) | (Reg. Schedule 6) | (Reg. Section 13) |
| Every 5 years (surface water source)<br>Every 10 years (ground water source) | **Prepare an Engineering Evaluation Report and submit a written notice to the Ministry** (within 7 days after the engineering evaluation report is required to be prepared). | ♦ This written notice must include a copy of an engineer's written opinion that all equipment required for treatment (schedule 2) and operational checks (schedules 6, 8, 9) is being provided and the reasons for the opinion. | ♦ Keep your Engineering Evaluation Report for at least 15 years. |
| | (Reg. Schedule 21) | (Reg. Schedule 21) | (Reg. Section 13) |

# 11 FORMS YOU MAY NEED TO SUBMIT TO THE MINISTRY OF THE ENVIRONMENT (MOE) TO COMPLY WITH O. REG. 170/03 (DRINKING-WATER SYSTEMS)

Under the provisions of Section 14, the MOE Director provides these forms for the submissions by non-municipal drinking-water system owners, and has required that these forms be given in the electronic format specified.

The most current versions of these forms are posted on the Ministry of the Environment Web site www.ene.gov.on.ca. The numbered forms are to be completed and submitted electronically by following the instructions posted with the forms. Each submission will consist of Part I (determination of the category of the system), Part II (contact information) and Part III (the form for the submission you are making). If you require assistance with submission forms, please call 1-866-793-2588 during normal business hours.

| NAME OF FORM | PURPOSE OF FORM AND THE RELEVANT SECTION(S) OF O. REG. 170/03 | TO WHOM AND WHEN TO SUBMIT THE FORM |
|---|---|---|
| **Written Notice Of Adverse Test Results and Other Problems** | To provide written notice in the event that any problems are found in your water quality or your drinking-water system has not been adequately disinfected, and the remedial actions you will take to correct the problem(s). | Submit the written notice to the Spills Action Centre by going to www.ene.gov.on.ca, then to the DWIS entry. Enter your user name and password, access the AWQI tab and enter the information electronically. If the report is not successful, complete appropriate sections of the form and fax it to (416) 325-3011 or 1-800-268-6061.<br>**Deadline:**<br>**Within 24 hours** of giving the required immediate verbal notice of problems |
| **AND** | | Drinking-water system owners must also submit the notice to:<br>♦ The **local Medical Officer of Health**;<br>♦ The operator of each Designated Facility[10] your drinking-water system serves (not required if served by a large municipal system); and<br>♦ The Minister or Interested Authority[11] for the Designated Facility |
| **Notice Of Issue Resolution (AWQI-NR)** | To provide notice that the issue is resolved.<br><br>Regulation Schedule 16 | Once the issue is resolved, complete Section 2 (b) and ensure Section 2(a) of the form is complete. Then fax the whole form to SAC at (416) 325-3011 or 1-800-268-6061.<br>**Deadline:**<br>**Within 7 days** of issue being resolved |

[10] You do not need to submit the form to the operator of the Designated Facility if the operator of the facility and the drinking-water system owner are the same.

| Name of Form | Purpose of Form and the Relevant Section(s) of O. Reg. 170/03 | To Whom and When to Submit the Form |
|---|---|---|
| **Form 1 – Advising That Steps Have Been Taken To Post Warning Notices And Render Fountains Inoperative** | Confirms that the following steps have been taken: posting warning notices and disconnecting all drinking water fountains.<br><br>Regulation Section 8 | Submit **Parts I and II and Part III Form 1** to the MOE electronically. |
| **Form 2 – Submitting The Annual Report** | Annual report of your drinking-water system.<br><br>Regulation Section 11 | Submit **Parts I and II and Part III Form 2** (Annual Report) to the MOE electronically. Note you are also required to provide a copy of the annual report to the Designated Facility and the Interested Authority.<br><br>**Deadline:**<br>**February 28th of each year** (year-round residential systems)<br>**December 31st of each year** (seasonal residential and large non-residential systems)<br>**May 31st of each year** (small non-residential systems) |
| **Form 3 – Notification Of Intent To Comply With Treatment Requirements** | Describes the intention to comply with treatment requirements.<br><br>Regulation Schedule 2 | Submit **Parts I and II and Part III Form 3** to the MOE electronically.<br><br>**Deadline:**<br>By **December 31, 2004** (small non-residential systems)<br>By **July 1, 2004** (all other systems) |
| **Form 4 – Notification Of Intent To Apply For Relief** | Describes intention to make an application for relief from requirements for provision of treatment equipment.<br><br>Regulation Schedule 2 | Submit **Parts I and II and Part III Form 4** to the MOE electronically.<br><br>**Deadline:**<br>By **December 31, 2004** (small non-residential systems)<br>By **July 1, 2004** (all other systems) |

[11] You do not need to submit the form to the Interested Authority if the Designated Facility your drinking-water system serves is a private school, children's camp or private seniors' residence/retirement.

| Name of Form | Purpose of Form and the Relevant Section(s) of O. Reg. 170/03 | To Whom and When to Submit the Form |
|---|---|---|
| **Form 5 – Written Notice Of Intent To Post Warning Notices** | **Written notice of intent to post warning notices.**<br><br>Regulation Schedule 2 | Submit **Parts I and II and Part III Form 5** to the MOE electronically.<br>**Deadline:**<br>By **December 31, 2004** (small non-residential systems)<br>By **July 1, 2004** (all other systems) |
| **Form 6 – Identifying The Laboratory(s) That Will Carry Out Testing** | To notify MOE of the identity of the laboratory(s) carrying out the required analyses on your water samples, and the specific parameters being tested by each laboratory.<br><br>Regulation Schedule 6 | Submit **Parts I and II and Part III Form 6** to the MOE.<br>Submit the form before a laboratory analyzes your samples for the first time, and re-submit it if there are any changes in laboratory, testing or drinking-water system information.<br>**Deadline:**<br>By **June 1, 2005** (for small non-residential systems that do not serve a Designated Facility)<br>By **June 1, 2003** (all other systems) |
| **Form 8 – Notification Of An Engineering Evaluation Report** (existing system) | Report from a professional engineer that all equipment needed to comply with treatment, operational checks, is being provided.<br><br>Regulation Schedule 21 | Submit **Parts I and II and Part III Form 8 and 10** to the MOE electronically.<br>**Deadline:**<br>If your drinking-water system began operating after June 1, 2003, your deadline is **within 30 days after your system began operating**<br>If your drinking-water system began operating before June 1, 2003, your deadline is **within 30 days after the date you are required to provide treatment equipment** |
| **Form 9 – Notification Of An Engineering Evaluation Report** (new/altered system) | Report from a professional engineer that all equipment needed to comply with treatment, operational checks, is being provided.<br><br>Regulation Schedule 21 | Submit **Parts I and II and Part III Forms 9 and 10** to the MOE electronically.<br>**Deadline:**<br>**30 days after the system or altered system commences operation** |

| Name of Form | Purpose of Form and the Relevant Section(s) of O. Reg. 170/03 | To Whom and When to Submit the Form |
|---|---|---|
| **Form 10 – Declaration Of Professional Engineer** | The engineer's opinion about the drinking-water system's compliance. This form is to be included in the Engineer's Evaluation Report.<br><br>Regulation Schedule 21 | **See above.** |

## FORMS TO BE USED BUT WHICH ARE NOT REQUIRED TO BE SUBMITTED TO THE DIRECTOR

| Name of Form | Purpose of Form and the Relevant Section(s) of O. Reg. 170/03 | Details on Posting |
|---|---|---|
| **Warning Notice, Election to Post Signs** | Warning notice to post if water has not been tested and treated in accordance with the regulation.<br><br>Regulation Section 8 | Post your warning notices at the entrance of every building or structure and at each tap. |
| **Warning Notice of Non-Compliance of O. Reg. 170/03** | Warning notice to post upon these adverse test results or adverse conditions:<br>♦ Improper disinfection (18-2)<br>♦ Turbidity (18-3)<br>♦ Chlorine residual (18-4)<br>♦ *Escherichia coli* (18-5)<br>and if corrective action has not been taken.<br><br>Regulation Schedule 19 | Post your warning notices at the entrance of every building or structure and at each tap and drinking water fountain, and if the system serves a Designated Facility, by providing sufficient copies of the notice and instructions to post notices. |

To obtain the current version of any of the above forms or new forms, refer to MOE's Web site at http://www.ene.gov.on.ca/

# 12 ACCREDITED LABS

When you send the water samples that are required by the Regulation to a laboratory for testing, the testing must be carried out by a lab that is accredited for each specific parameter that is being tested. While some labs may be accredited to test for all the microbiological and chemical parameters required by the Regulation, others may be accredited for testing only microbiological parameters and/or only some chemical parameters. A lab that is not accredited to test for a parameter can sub-contract the testing of that parameter if another lab is accredited for that parameters, but only with your consent.

To find out if a lab is accredited:

1. Contact the Standards Council of Canada through their Web site: **http://www.scc.ca**; email: **info@scc.ca**; or telephone: 1-613-238-3222

2. Contact the Public Information Centre at 1-800-565-4923 or (416) 325-4000 or

3. Contact a lab directly and ask them about their accreditation status.

# 13 PUBLIC HEALTH UNITS

To contact the **local Medical Officer of Health**, contact your local Public Health Unit.

**NOTE:** The following list is subject to change. Up-to-date contact information for Public Health Units can be found online at the Ministry of Health and Long-Term Care (MOHLTC) Web site at http://www.health.gov.on.ca/english/public/contact/phu/phuloc_mn.html. Or, call the MOHLTC info-line at 1-800-268-1154 (Toll free in Ontario only) or (416) 314-5518.

## CENTRAL EAST REGION

**Simcoe County District Health Unit**
15 Sperling Drive
Barrie, Ontario L4M 6K9
Tel: (705) 721-7330
Fax: (705) 721-1495
Web: www.simcoehealth.org

**Haliburton, Kawartha, Pine Ridge District Health Unit**
200 Rose Glen Road
Port Hope, Ontario L1A 3V6
Tel: (905) 885-9100
Toll free: 1-866-888-4577
Fax: (905) 885-9551
Web: www.hkpr.on.ca

**York Region Health Services Department**
Box 147, 17250 Yonge Street
Newmarket, Ontario L3Y 6Z1
Tel: (905) 895-4511
Fax: (905) 895-3166
Toll free: 1-800-361-5653 (Health Connection Line)
Web: www.region.york.on.ca

**Regional Municipality of Durham Health Department**
1615 Dundas Street East, Suite 210
Lang Tower, West Bldg., Whitby Mall
Whitby, Ontario L1N 2L1
Tel: (905) 723-8521 / (905) 686-2740
Toll free: 1-800-841-2729
Fax: (905) 723-6026
Web: www.region.durham.on.ca

**Peterborough County-City Health Unit**
10 Hospital Drive
Peterborough, Ontario K9J 8M1
Tel: (705) 743-1000
Fax: (705) 743-2897
Web: pcchu.peterborough.on.ca

## CENTRAL SOUTH REGION

**Brant County Health Unit**
194 Terrace Hill Street
Brantford, Ontario N3R 1G7
Tel: (519) 753-4937
Fax: (519) 753-5942
Web: www.bchu.org

**Regional Municipality of Haldimand-Norfolk Health Department**
P.O. Box 247, 12 Gilbertson Drive
Simcoe, Ontario N3Y 4L1
Tel: (519) 426-6170
Fax: (519) 426-9974
Web: www.haldimand-norfolk.org

**City of Hamilton**
**Social and Public Health Services Division**
One Hughson St. North, 3rd Floor
Hamilton, Ontario L8R 3L5
Tel: (905) 546-3500
Fax: (905) 546-4075
Web: www.city.hamilton.on.ca

**Regional Niagara Public Health Department**
573 Glenridge Avenue
St. Catharines, Ontario L2T 4C2
Tel: (905) 688-3762
Toll free: 1-800-263-7248
Fax: (905) 682-3901
Web: www.regional.niagara.on.ca/health

## CENTRAL WEST REGION

**Peel Regional Health Unit**
44 Peel Centre Drive, Suite 102
Brampton, Ontario L6T 4B5
Tel: (905) 799-7700
Fax: (905) 789-1604
Web: www.region.peel.on.ca/health

**Halton Regional Health Department**
1151 Bronte Road
Oakville, Ontario L6M 3Ll
Tel: (905) 825-6060
Toll free: 1-866-442-5866
Fax: (905) 825-8588
Web: www.region.halton.on.ca/health

**Wellington-Dufferin-Guelph Health Unit**
205 Queen Street East
Fergus, Ontario N1M 1T2
Tel: (519) 843-2460
Toll free: 1-800-265-7293
Fax: (519) 843-2321
Web: www.wdghu.org

**Regional Municipality of Waterloo, Community Health Department**
P.O. Box 1633, 99 Regina Street South, 3rd Floor
Waterloo, Ontario N2J 4V3
Tel: (519) 883-2000
Fax: (519) 883-2241
Web: www.region.waterloo.on.ca

## EAST REGION

**Hastings and Prince Edward Counties Health Unit**
179 North Park Street
Belleville, Ontario K8P 4P1
Tel: (613) 966-5500
Fax: (613) 966-9418
Web: www.hpechu.on.ca

**Kingston, Frontenac and Lennox and Addington Health Unit**
221 Portsmouth Avenue
Kingston, Ontario K7M 1V5
Tel: (613) 549-1232
Toll free: 1-800-267-7875
Fax: (613) 549-7896
Web: www.healthunit.on.ca

**Leeds, Grenville and Lanark District Health Unit**
458 Laurier Boulevard
Brockville, Ontario K6V 7A3
Tel: (613) 345-5685
Fax: (613) 345-2879
Web: www.healthunit.org

**City of Ottawa Health Department**
495 Richmond Road
Ottawa, Ontario K2A 4A4
Tel: (613) 722-2328
Fax: (613) 724-4152
Web:
http://www.city.ottawa.on.ca/city_services/yourhealth/28_0_en.shtml

**Eastern Ontario Health Unit**
1000 Pitt Street
Cornwall, Ontario K6J 5T1
Tel: (613) 933-1375
Toll free: 1-800-267-7120
Fax: (613) 933-7930
Web: www.eohu.on.ca

**Renfrew County and District Health Unit**
7 International Drive
Pembroke, Ontario K8A 6W5
Tel: (613) 732-3629
Toll free: 1-800-267-1097
Fax: (613) 735-3067
Web: www.rcdhu.com

## TORONTO REGION

**Toronto Public Health**
277 Victoria Street, 5th Floor
Toronto, Ontario M5B 1W2
Tel: (416) 392-7401
Fax: (416) 392-0713
Web: www.city.toronto.on.ca/health

## NORTH REGION

**Muskoka-Parry Sound Health Unit**
70 Pine Street
Bracebridge, Ontario P1L 1N3
Tel: (705) 645-4471
Toll free: 1-800-563-2808
Fax: (705) 645-8567
Web: www.mpshu.on.ca

**Algoma Health Unit**
Civic Centre, 6th Floor, 99 Foster Drive
Sault Ste. Marie, Ontario P6A 5X6
Tel: (705) 759-5287
Toll free: 1-866-892-0172
Fax: (705) 759-1534
Web: www.ahu.on.ca

**Northwestern Health Unit**
21 Wolsley Street
Kenora, Ontario P9N 3W7
Tel: (807) 468-3147
Toll free: 1-800-830-5978
Fax: (807) 468-4970
Web: www.nwhu.on.ca

**Sudbury and District Health Unit**
1300 Paris Street
Sudbury, Ontario P3E 3A3
Tel: (705) 522-9200
Fax: (705) 522-5182
Web: www.sdhu.com

**Timiskaming Health Unit**
P.O. Box 1240, 221 Whitewood Avenue
New Liskeard, Ontario P0J 1P0
Tel: (705) 647-4305
Fax: (705) 647-5779
Web: www.timiskaminghu.com

**Thunder Bay District Health Unit**
999 Balmoral Street
Thunder Bay, Ontario P7B 6E7
Tel: (807) 625-5900
Toll free from area code 807: 1-888-294-6630
Fax: (807) 623-2369
Web: www.tbdhu.com

**North Bay and District Health Unit**
681 Commercial Street
North Bay, Ontario P1B 4E7
Tel: (705) 474-1400
Fax: (705) 474-8252
Web: www.nbdhu.on.ca

**Porcupine Health Unit**
P.O. Bag 2012, 169 Pine Street South
Timmins, Ontario P4N 8B7
Tel: (705) 267-1181
Fax: (705) 264-3980
Web: www.porcupinehu.on.ca

## SOUTH WEST REGION

**Chatham-Kent Health Unit**
P.O. Box 1136, 435 Grand Avenue West
Chatham, Ontario N7M 5L8
Tel: (519) 352-7270
Fax: (519) 352-2166
Web: http://www.chatham-kent.ca/English/default.htm

**Elgin-St. Thomas Health Unit**
99 Edward Street
St. Thomas, Ontario N5P 1Y8
Tel: (519) 631-9900
Toll free: 1-800-922-0096
Fax: (519) 633-0468
Web: www.elginhealth.on.ca

**Huron County Health Unit**
Health and Library Complex
Highway 4 South, R.R. 5, P.O. Box 1120
77722B London Rd.
Clinton, Ontario N0M 1L0
Tel: (519) 482-3416
Fax: (519) 482-7820
Web site: www.srhip.on.ca/hchu

**Perth District Health Unit**
653 West Gore Street
Stratford, Ontario N5A 1L4
Tel: (519) 271-7600
Fax: (519) 271-2195
Web: www.pdhu.on.ca

**Middlesex-London Health Unit**
50 King Street
London, Ontario N6A 5L7
Tel: (519) 663-5317
Fax: (519) 663-9581
Web: www.healthunit.com

**Windsor-Essex County Health Unit**
1005 Ouellette Avenue
Windsor, Ontario N9A 4J8
Tel: (519) 258-2146
Fax: (519) 258-6003
Web: www.wechealthunit.org

**Grey Bruce Health Unit**
920 First Avenue West
Owen Sound, Ontario N4K 4K5
Tel: (519) 376-9420
Toll free: 1-800-263-3456
Fax: (519) 376-0605
Web: http://www.publichealthgreybruce.on.ca

**Oxford County Board of Health**
410 Buller Street
Woodstock, Ontario N4S 4N2
Tel: (519) 539-9800
Toll free: 1-800-755-0394
Fax: (519) 539-6206
Web: www.county.oxford.on.ca/ocbh

**County of Lambton**
**Community Health Services Department**
160 Exmouth Street
Point Edward, Ontario N7T 7Z6
Tel: (519) 383-8331
Toll free: 1-800-667-1839
Fax: (519) 383-7092
Web: www.lambtonhealth.on.ca

# 14 INFORMATION ON TRAINING AND CERTIFICATION REQUIREMENTS

This chapter describes the qualifications required for the operation of a drinking-water system under the Drinking-Water Systems Regulation. Ensuring the supply of safe drinking water to the public is of critical importance for anyone responsible for a drinking-water system. Knowledge of the public health risks, treatment requirements, regulations, sampling and monitoring procedures and emergency measures is a prerequisite for operating a drinking-water system. As such, the Drinking-Water Systems Regulation requires that operators responsible for the equipment supplying water to the public are either a **"trained person"** or a **"certified operator"** and that the individuals carrying out required operational tests are either trained persons, certified operators, or **"water quality analysts."**

A **"trained person"** as defined in the Drinking-Water Systems Regulation is a person who is a **"certified operator,"** or a person who, in the preceding 36 months, successfully completed a course approved by the Director that relates to the operation and routine maintenance of drinking-water systems.

A **"certified operator"** is defined in the Drinking-Water Systems Regulation as a person who holds an operator-in-training licence or a Class I, Class II, Class III or a Class IV water treatment or water distribution licence. A certified operator can also include a person who holds a conditional operator's licence or has qualifications that, in the opinion of the Director, are equivalent to the qualifications required for an operator's licence. Licensing requirements and qualifications are specified in O. Reg. 435/93.

A **"water quality analyst"** is defined as a person who has at least one year of experience working in a laboratory in a drinking-water system or similar laboratory, and has passed an approved exam or has the same skill levels in the opinion of the Director through education, training or experience.

As specified in the Drinking-Water Systems Regulation a trained person or a certified operator must (depending on the type of system):

- make all adjustments to the water treatment equipment;
- examine, within 72 hours after the tests are conducted, the results of continuous monitoring equipment;
- be promptly dispatched to the drinking-water system if alarms sound as a result of equipment malfunction or loss of power or a test result which is above the maximum or below the minimum alarm standards established by the Regulation;
- perform all total chlorine residual, free chlorine residual, turbidity or fluoride testing required; and
- perform regular checks on water treatment equipment to confirm proper functioning.

However, a water quality analyst is also allowed to carry out the following activities if not carried out by a trained person or certified operator:

- perform all total chlorine residual, free chlorine residual, turbidity or fluoride testing required.

The following chart indicates whether the system requires a certified operator or trained person:

| Type of System | Required Qualification |
|---|---|
| Non-Municipal Year-Round Residential | Certified Operator |
| Large Non-Municipal Non-Residential | Certified Operator |
| Non-Municipal Seasonal Residential | Trained Person |
| Small Non-Municipal Non-Residential | Trained Person |

To verify that a person employed in a water system is a "trained person" or a "certified operator," course certificates clearly indicating the date, course title, training organization, and course duration must be maintained and be available upon request by the Ministry of the Environment.

The following courses have been approved by the Ministry of the Environment as meeting the requirements of a "trained person":

- *Operation of Small Drinking Water Systems* (formerly titled Small Seasonal Drinking Water Systems) – correspondence course available through the Ministry of the Environment (905-796-2851)
- *Class I Water Treatment Exam Preparation Course* (offered by the Ministry of the Environment in 2001-02)
- *Small Water Systems Operation and Maintenance* – Correspondence course from California State University (916-278-6142) www.owp.csus.edu
- *Water Treatment Plant Operation* – A correspondence course from California State University (916-278-6142) www.owp.csus.edu
- Any combination of American Water Works Association (AWWA) on-line learning courses totaling 18 hours or more (1-800-926-7337) www.awwa.org
- Any drinking-water correspondence or related course offered through the Northern Alberta Institute of Technology (1-800-661-4077) www.nait.ab.ca

Any water treatment course offered through the following organizations – provided the course is 1.8 Continuing Education Units (approximately 3 days) or more in duration; includes a final written test by the student; and includes topics on public health risks associated with untreated water, disinfection, sampling and testing procedures, emergency measures, and applicable regulations:

- Any Ontario Community College drinking-water course
- Canadian Enviro-Courses (705-645-9570) www.cecourses.on.ca
- Electrical & Utilities Safety Association (1-800-263-5024) www.eusa.on.ca

- Environmental Training Institute (905-892-1177) http://mywebpage.netscape.com/etivc/eti.html
- Lexicon Environmental Consulting (905-829-9055) (email: lexicon@.ca.inter.net)
- Ontario Good Roads Association (905-795-2555) www.municipalengineers.on.ca
- Tangible Skills Training (905-878-1664) www.tangibleskills.ca
- Technical Learning Courses (519-740-1222) hometown.aol.ca/Tlearncourses/tlcourse.htm
- Ontario Water Operators Training Centre (519-255-2888, ext. 816) www.owotc.com

Other courses may be approved by the Ministry upon review of the course content, duration, objectives and training manual. To submit a course for approval send a description of the course to:

Ontario Environmental Training Consortium (OETC)
37 George St. North, Suite 206
Brampton, Ontario
L6X 1R5
Fax: (905) 796-8744

More information on operator licences and the "trained person" designation can be found at the OETC's Web site:

www.oetc.on.ca

or by contacting the OETC at:

Phone: (905) 796-2851
Internet: info@oetc.on.ca

# 15 OTHER USEFUL INFORMATION

The Government of Ontario has produced many informative publications related to drinking-water protection and its Clean Water Strategy.

To access published information on drinking-water protection and other water issues, go to:

www.ene.gov.on.ca

or use the following links for direct access to selected topics.

## General

- News Releases and Media Backgrounders

  http://www.ene.gov.on.ca/envision/news/index.htm

- Publications – Ontario Ministry of the Environment

  http://www.ene.gov.on.ca/envision/index_publ.htm

- *Drinking Water Treatment: A Guide for Owners of Private Communal Works and Other Small Water Supply Systems* [PDF]

  http://www.ene.gov.on.ca/envision/gp/4222e.pdf

  This guide provides an introduction to water system maintenance and treatment technologies, and helpful tips on selecting water treatment equipment.

- *Appendix: Drinking Water Treatment Service Providers* [PDF]

  http://www.ene.gov.on.ca/envision/gp/4222e_appendix.pdf

## Ontario Government Regulations and Legislation

- www.e-laws.gov.on.ca

# 16 CONTACT INFORMATION

This information is subject to change. Refer to the Government of Ontario Web site at www.gov.on.ca and go to the relevant Ministry or organizational unit for current listings.

**Important Contacts at the MOE Regarding O. Reg. 170/03**

| MINISTRY OF THE ENVIRONMENT CONTACT INFORMATION | RELEVANT ISSUES |
|---|---|
| **Ministry of the Environment Public Information Centre**<br>1st Floor, 135 St. Clair Ave. West<br>Toronto, Ontario M4V 1P5<br>General inquiry: (416) 325-4000<br>Toll free: 1-800-565-4923<br>Fax: (416) 325-3159 | ♦ General inquiries<br>♦ Obtaining warning notices |
| **Spills Action Centre**<br>Tel: 1-800-268-6060<br>Fax: 1-800-268-6061 | ♦ Adverse water quality and notice of problems [Reg. Schedule 16]<br>♦ Written notice of issue resolution [Reg. Schedule 16] |
| **Environmental Assessment and Approvals Branch**<br>Attention: Director<br>2 St. Clair Avenue West, Floor 12A<br>Toronto, Ontario M4V 1L5<br>Tel: (416) 314-8001<br>Toll free: 1-800-461-6290<br>Fax: (416) 314-8452 | ♦ Determination if ground water system is under the direct influence of surface water [Reg. Section 2]<br>♦ Notification of intent to comply with treatment requirements [Reg. Schedule 2]<br>♦ Notification of intent to seek relief from requirements for provision of treatment equipment [Reg. Schedule 2]<br>♦ Application for relief from requirements for provision of treatment equipment [Reg. Schedule 5]<br>♦ Notification of intent to make an election to post warning signs [Reg. Section 8]<br>♦ Notification that all steps have been taken to meet the requirements of posting warning notices [Reg. Section 8]<br>♦ Submission of system description and engineer's opinion [Reg. Schedule 21]<br>♦ Submission of an Engineering Evaluation Report if requested [Reg. Schedule 21] |

| Ministry of the Environment Contact Information | Relevant Issues |
|---|---|
| **Environmental Monitoring and Reporting Branch**<br>Attention: Director<br>West Wing, 125 Resources Road<br>Toronto, Ontario M9P 3V6<br>Tel: (416) 235-6300<br>Fax: (416) 235-6235 | ♦ Facility registration information<br>♦ Assignment of registration number for each system<br>♦ Submission of Annual Reports [Reg. Section 11]<br>♦ Submission of laboratory test results [Reg. Schedule 6] |
| **Laboratory Services Branch**<br>Attention: Director<br>125 Resources Road<br>Toronto, Ontario M9P 3V6<br>Tel: (416) 235-5743<br>Fax: (416) 235-5744 | ♦ Notification of laboratory(s) identification [Reg. Schedule 6]<br>♦ Notification of intention to reduce the frequency of sampling [Reg. Schedule 11 and 12]<br>♦ Determination of equivalent laboratory testing methods and equipment [Reg. Schedule 6]<br>♦ Determination of testing proficiency for health-related parameters [Reg. Schedule 6]<br>♦ Determination of testing proficiency for radiological parameters [Reg. Schedule 6] |
| **Human Resources Branch**<br>Attention: Director<br>40 St. Clair Ave. West, 5th Floor<br>Toronto, Ontario M4V 1M2<br>Tel: (416) 314-9300<br>TDD: (416) 314-9336<br>Fax: (416) 314-9313 | ♦ Training for drinking-water system operators to become a "trained person," "certified operator" or "water quality analyst" [Reg. Section 1] |

**Interested Authorities For Designated Facilities**

| Contact Information | Types Of Designated Facilities Covered (refer to Glossary of Terms for more detailed descriptions of facility type) |
|---|---|
| **The Director of the Delivery Agent Care Facility**<br>Contact the Designated Facility to obtain this contact information. | ♦ Delivery agent care facilities |
| **Ministry Of Health and Long-Term Care**<br>Public Health Branch<br>Attention: Fred Ruf<br>5700 Yonge Street, 8th Floor<br>Toronto, Ontario M2M 4K5<br>Tel: (416) 327-7392<br>Fax: (416) 327-7438 | ♦ Health care facilities |

| Contact Information | Types Of Designated Facilities Covered (refer to Glossary of Terms for more detailed descriptions of facility type) |
|---|---|
| **Ministry of Education**<br>Director, Business Services Branch<br>900 Bay Street, Mowat Block, 21st Floor<br>Toronto, Ontario M7A 1L2<br>Tel: (416) 325-4242<br>Fax: (416) 325-4024 | ♦ Schools |
| **Ministry of Community, Family and Children's Services**<br>Management Support Branch<br>80 Grosvenor Street, Hepburn Block, 7th Floor<br>Toronto, Ontario M7A 1E9<br>Tel: (416) 325-5444<br>Fax: ( 416) 212-1499 | ♦ Social care facilities (group homes) |
| **Ministry Of Training, Colleges and Universities**<br>Assistant Deputy Minister,<br>Post Secondary Education Division<br>900 Bay Street, Mowat Block, 7th Floor<br>Toronto, Ontario M7A 1L2<br>Tel: (416) 325-2199<br>Fax: (416) 326-3256 | ♦ Universities, colleges of applied arts and technology, and institutions with authority to grant degrees |

## MINISTRY OF THE ENVIRONMENT DISTRICT AND REGIONAL OFFICES

### NORTHERN REGION

**Thunder Bay Regional Office**
435 James St. South, Suite 331
Thunder Bay, Ontario P7E 6S7
Toll free from area codes 705/807:
1-800-875-7772
Tel: (807) 475-1205
Fax: (807) 475-1754

**Thunder Bay District Office**
435 James St. South, Suite 331
Thunder Bay, Ontario P7E 6S7
Toll free from area codes 705/807:
1-800-875-7772
Tel: (807) 475-1315
Fax: (807) 473-3160

**Sault Ste. Marie Area Office**
70 Foster Drive, Suite 610
Sault Ste. Marie, Ontario P6A 6V4
Toll free from area codes 705/807:
1-800-965-9990
Tel: (705) 541-2170
Fax: (705) 541-2171

**Sudbury District Office**
199 Larch St., Suite 1101
Sudbury, Ontario P3E 5P9
Toll free from area codes 705/807:
1-800-890-8516
Tel: (705) 564-3237
Fax: (705) 564-4180

**Timmins District Office**
Ontario Government Complex
Hwy 101 East, P.O. Bag 3080
South Porcupine, Ontario P0N 1H0
Toll free from area codes 705/807:
1-800-380-6615
Tel: (705) 235-1500
Fax: (705) 235-1520

**North Bay Area Office**
447 McKeown Ave., Suite 103
North Bay, Ontario P1B 9S9
Toll free from area code 705:
1-800-609-5553
Tel: (705) 497-6865
Fax: (705) 497-6866

**Kenora Area Office**
808 Robertson St., P.O. Box 5150
Kenora, Ontario P9N 1X9
Toll free from area code 807: 1-888-367-7622
Tel: (807) 468-2718
Fax: (807) 468-2735

## CENTRAL REGION

**Central Region Office**
5775 Yonge St., 8th Floor
North York, Ontario M2M 4J1
Toll free: 1-800-810-8048
Tel: (416) 326-6700
Fax: (416) 325-6345

**Halton-Peel District Office**
4145 North Service Road, Suite 300
Burlington, Ontario L7L 6A3
Toll free: 1-800-335-5906
Tel: (905) 319-3847
Fax: (905) 319-9902

**York-Durham District Office**
230 Westney Rd. South, 5th Floor
Ajax, Ontario L1S 7J5
Toll free: 1-800-376-4547
Tel: (905) 427-5600
Fax: (905) 427-5602

**Metro Toronto District Office**
5775 Yonge St., 8th Floor
North York, Ontario M2M 4J1
Toll free: 1-800-810-8048
Tel: (416) 326-6700
Fax: (416) 325-6346

## EASTERN REGION

**Kingston Regional Office**
Box 820, 133 Dalton Ave.
Kingston, Ontario K7L 4X6
Toll free from area codes 613/705/905:
1-800-267-0974
Tel: (613) 549-4000
Fax: (613) 548-6908

**Belleville Area Office**
Belleville Mall
470 Dundas St. East
Belleville, Ontario K8N 1G1
Toll free from area code 613: 1-800-860-2763
Tel: (613) 962-9208
Fax: (613) 962-6809

**Kingston District Office**
Box 820, 133 Dalton Ave.
Kingston, Ontario K7L 4X6
Toll free from area codes 613/705/905:
1-800-267-0974
Tel: (613) 549-4000, ext. 2692
Fax: (613) 548-6920

**Ottawa District Office**
2435 Holly Lane
Ottawa, Ontario K1V 7P2
Toll free from area code 613: 1-800-860-2195
Tel: (613) 521-3450
Fax: (613) 521-5437

**Cornwall Area Office**
113 Amelia St., 2nd Floor
Cornwall, Ontario K6H 3P1
Toll free from area code 613: 1-800-860-2760
Tel: (613) 933-7402
Fax: (613) 933-6402

**Peterborough District Office**
300 Water Street, 2nd Floor
Robinson Place, South Tower
Peterborough, Ontario K9J 8M5
Toll free from area codes 613/705/905:
1-800-558-0595
Tel: (705) 755-4300
Fax: (705) 755-4321

## WEST CENTRAL REGION

**Hamilton Regional Office**
12th Floor, E.F. Bldg., 119 King St. West
Hamilton, Ontario L8P 4Y7
Toll free: 1-800-668-4557
Tel: (905) 521-7640
Fax: (905) 521-7820

**Guelph District Office**
One Stone Road West, 4th Floor
Guelph, Ontario N1G 4Y2
Toll free: 1-800-265-8658
Tel: (519) 826-4255
Fax: (519) 826-4286

**Niagara District Office**
301 St. Paul St., 9th Floor, Suite 15
St. Catharines, Ontario L2R 3M8
Toll free: 1-800-263-1035
Tel: (905) 704-3900
Fax: (905) 704-4015

**Hamilton District Office**
9th Floor, E.F. Bldg., 119 King St. West
Hamilton, Ontario L8P 4Y7
Toll free: 1-800-668-4557
Tel: (905) 521-7650
Fax: (905) 521-7806

## SOUTHWESTERN REGION

**London Regional Office**
733 Exeter Road
London, Ontario N6E 1L3
Toll free from area code 519: 1-800-265-7672
Tel: (519) 873-5000
Fax: (519) 873-5020

**Barrie District Office**
54 Cedar Pointe Drive, Unit 1203
Barrie, Ontario L4N 5R7
Toll free: 1-800-890-8511
Tel: (705) 739-6441
Fax: (705) 739-6440

**Sarnia District Office**
1094 London Rd.
Sarnia, Ontario N7S 1P1
Toll free: 1-800-387-7784
Tel: (519) 336-4030
Fax: (519) 336-4280

**Windsor District Office**
Unit 620, 4510 Rhodes Dr.
Windsor, Ontario N8W 5K5
Toll free: 1-800-387-8826
Tel: (519) 948-1464
Fax: (519) 948-2396

**Owen Sound District Office**
1580 - 20th St. East, P.O. 967
Owen Sound, Ontario N4K 6H6
Toll free from area code 519: 1-800-265-3783
Tel: (519) 371-2901
Fax: (519) 371-2905

# 17 OVERVIEW OF THE DRINKING-WATER SYSTEMS REGULATION

The following is a brief overview of the Drinking-Water Systems Regulation.

The Drinking-Water Systems Regulation has 16 sections and 24 schedules:

**Sections**

Section 1 **Interpretation: general.** This section defines terms used in the Regulation. This includes a definition for "designated facilities" which is an expanded definition from the one found in Ontario Regulation 505/01 and now includes children's camps. The definition of each category of drinking-water system is also included.

Section 2 **Interpretation: ground water under the direct influence of surface water.** This section defines whether a drinking-water system's raw water supply is deemed to be ground water under the influence of surface water for the purposes of O. Reg. 170/03.

Section 3 **Interpretation: Open designated facilities and public facilities.** This section defines when schools, designated facilities and public facilities are "open."

Section 4 **Application.** This section includes a table of the categories of drinking-water systems and the schedules that apply to the drinking-water systems that are covered by Ontario Regulation 170/03.

Section 5 **Exemptions: residential systems.** This section provides some exemptions for non-municipal year-round residential drinking-water systems that obtain all of their water from a drinking-water system that is regulated under O. Reg. 170/03 and that provides secondary disinfection.

Section 6 **Exemptions: non-residential systems connected to other systems.** This section provides some exemptions for non-residential systems that are connected to and receive water from a drinking-water system that is regulated under O. Reg. 170/03 and that provides secondary disinfection.

Section 7 **Exemptions: non-residential systems that receive transported water.** This section provides some exemptions for non-residential systems that receive transported water from a drinking-water system that provides proper secondary disinfection, if certain requirements are met.

Section 8 **Exemptions: warning notices for systems and users without electricity, etc.** This section provides exemptions from the requirements of O. Reg. 170/03 for certain drinking-water systems if signs are posted in accordance with the requirements described in this section. These systems include those that do not use electricity as well as small non-municipal non-residential systems that use electricity and also do not serve any designated facilities or food premises that rely on the system for the supply of potable water (under the Food Premises

Regulation, Regulation 562). This section also describes sunset dates for these exemptions that apply to most of the systems affected and after which those systems will have to comply with all of the requirements of the Regulation, including testing and treatment requirements.

Section 9 **Exemptions from approval requirements of the** *Safe Drinking Water Act, 2002.* This section provides an exemption for municipal non-residential systems and some municipal residential systems from having to obtain an approval under Part V of the *Safe Drinking Water Act, 2002.*

Section 10 **Revocation of the** *Ontario Water Resources Act* **(OWRA) approvals for non-municipal systems.** This section sets out when approvals granted under the OWRA for non-municipal systems are revoked.

Section 11 **Annual Reports.** This section outlines the requirements with respect to submitting an annual report for all municipal and regulated non-municipal systems and includes the deadline for submitting these reports to the Director (Ministry of the Environment), based on the category of drinking-water system.

Section 12 **Information to be available.** This section sets out a number of requirements for making information available for inspection by a provincial officer or any member of the public.

Section 13 **Retention of records.** This section sets out the specific periods that different reports must be kept by the owner of a drinking-water system.

Section 14 **Forms.** This section provides the Director (Ministry of the Environment) with authority to require any written notices, warning notices, records or reports to be provided or approved by the Director. In addition, it allows the Director to specify the electronic format in which any document or record may be submitted in connection with the Regulation.

Section 15 **Purpose of notice to interested authorities.** This section explains that the notice given to interested authorities is to provide them with information relating to compliance with O. Reg. 170/03.

Section 16 **Commencement.** This section indicates that O. Reg. 170/03 comes into force on June 1, 2003.

**Schedules**

Schedule 1-2 **Treatment Equipment.** These two schedules contain performance-based criteria which enables owners of non-municipal systems and specified municipal systems to choose the technology that meets the required performance. Includes deadlines for meeting the requirements for provision of treatment equipment by drinking-water category.

Schedule 3 **Point of Entry Treatment.** This schedule provides an exemption from the requirement for secondary disinfection if a drinking-water system uses a point of entry treatment approach and also meets specific criteria.

Schedule 4-5 **Relief from Schedule 1 and Schedule 2.** These two schedules allow owners of drinking-water systems with high quality ground water to apply to the Director (Ministry of the Environment) for relief from the requirements for provision of treatment equipment (i.e., disinfection). The application must contain a risk analysis and management plan to show that the source water is of high quality. The approval for relief from all treatment requirements will be reviewed every five years.

Schedule 6-15 **Operational Checks, Sampling and Testing.** These 10 schedules outline the requirements to perform regular operational checks of all water treatment equipment, and sample and test for microbiological and chemical parameters for the various categories of drinking-water systems.

Schedule 16 **Reporting Adverse Test Results and Other Problems.** This schedule outlines adverse test results and other problems which require immediate notification under section 18 of the SDWA. It sets out strict notification requirements including a requirement to notify the Spills Action Centre (SAC) and the Medical Officer of Health summarizing the actions taken to correct the adverse test result.

Schedule 17-18 **Corrective Action.** These two schedules outline corrective actions for different types of adverse test results and other problems observed for different categories of systems. Schedule 18 also references a more detailed procedure related to corrective actions for systems that are not currently using chlorine.

Schedule 19 **Warning Notice of Potential Problems.** This schedule requires owners and operating authorities of drinking-water systems (other than large municipal systems) to post a warning notice if they are not complying with the microbiological testing, did not carry out corrective actions as stipulated, or are required by a corrective action step to notify all users of the system to use an alternate source or boil the water before use.

Schedule 20 **Engineers' Reports (municipal residential).** This schedule outlines the requirement for large and small municipal residential systems to prepare an Engineer's Report. This report must be prepared by a professional engineer in accordance with the document *"Terms of Reference for Engineers' Reports for Water Works"* (dated August 2000).

Schedule 21 **Engineering Evaluation Reports (municipal non-residential; non-municipal residential; non-municipal non-residential).** This schedule outlines the requirement to prepare an Engineering Evaluation Report. This report must be prepared by a professional engineer certifying that all equipment necessary to comply with requirements for treatment and operational checks is being provided.

Schedule 22 **Summary Reports for Municipalities (municipal residential).** This schedule establishes a timetable for summary reports to be prepared related to municipal residential drinking-water systems regarding any approvals, or orders that the system failed to meet.

Schedule 23 **Inorganic Parameters (all systems).** This schedule provides a list of 9 inorganic parameters for the purposes of Regulation 170/03.

Schedule 24 **Organic Parameters (all systems).** This schedule provides a list of 56 organic parameters for the purposes of Regulation 170/03.

# 18 GLOSSARY

**NOTE:** This glossary is for guidance only. For a complete definition of some terms, it is often necessary to refer to another document where the term is fully defined. For example, for a complete definition of "nursing home," you must refer directly to the *Nursing Homes Act*.

**Accredited laboratory**

When sending drinking-water samples to a laboratory for analysis, you are required to use a laboratory that is accredited for the parameter being tested. At the present time, to become accredited, a lab must be successfully assessed by the Canadian Association of Environmental Analytical Laboratories (CAEAL). Upon CAEAL's recommendation, the Standards Council of Canada (or its equivalent, as determined by the appointed Director) may grant accreditation. A lab can be accredited to test only one or a few parameters, or a great variety of parameters.

**Certified Operator**

"certified operator" means,

a) a person who holds an operator-in-training's licence or any class of water treatment facility or water distribution facility operator's licence under section 6 or 8 of Ontario Regulation 435/93 (Water Works and Sewage Works),

b) a person who holds a water treatment facility or water distribution facility conditional operator's licence issued under section 6.1 of Ontario Regulation 435/93, or

c) person who has qualifications that, in the opinion of the Director, are equivalent to the qualifications required for a licence referred to in clause (a).

Refer to **Chapter 14** in this kit for information on required and acceptable training.

**Chemical parameters**

"chemical parameters" refers to all the chemicals that must be tested for under this Regulation. These parameters include volatile organics, inorganics, pesticides and PCBs, and do not include what are known as microbiological parameters (i.e., coliforms and general bacteria population), or operational parameters such as turbidity and chlorine residual. A complete list of chemical parameters can be found in Schedule 1 of the Ontario Drinking-Water Quality Standards Regulation.

**Children's Camp**

"children's camp" means a camp that is intended primarily for campers under 18 years of age and that is a class A camp or class B camp within the meaning of Regulation 568 of the Revised Regulations of Ontario, 1990 (Recreational Camps) under the *Health Protection and Promotion Act*.

**Chloramination**

"chloramination" means combined chlorine residual disinfection where the combined chlorine residual is predominately in the form of monochloramine.

**Chlorination**

"chlorination" means free chlorine residual disinfection.

**Chlorine residual**

"chlorine residual" is the concentration of chlorine remaining in water at the end of a specified contact period, which will react chemically and biologically. It may be present as either 'combined' or 'free chlorine' – or both. The absence of chlorine residual is an immediate indication of potential water quality or treatment process concerns, and that water is not protected from contamination by microbiological organisms.

**Coliforms (total coliforms, *E. Coli*, fecal coliforms)**

"coliforms" are a group of bacteria typically found in the intestinal tracts of warm-blooded animals (including humans), as well as in plants, soil, air and water. Fecal coliforms (and in particular *E. Coli* – a member of the fecal coliform group) are a specific class of bacteria that only inhabit the intestines of warm-blooded animals.

**Day Nursery**

"day nursery" means a day nursery as defined in the *Day Nurseries Act*.

**Deficiency**

"deficiency" as defined in O. Reg. 172/03 means, in respect of a drinking-water system is,

A violation of any of the following provisions is prescribed as a deficiency for the purposes of the Act, including the definition of "deficiency" in subsection 2 (1) of the Act, if, in the opinion of the Director, the violation poses a drinking-water health hazard:

1. Subsection 18 (1) of the Act.
2. Schedules 1, 2 and 6 to 18 to Ontario Regulation 170/03 (Drinking-Water Systems).

**Delivery agent care facility**

"delivery agent care facility" means

a) a place where an emergency hostel service that receives funding under the *Ontario Works Act, 1997* is provided,

b) a domiciliary hostel that receives funding under the *Ministry of Community and Social Services Act*,

c) a place where a resource centre program that receives funding under the *Day Nurseries Act* is provided, or

d) a place where a recreational program that receives funding under the *Day Nurseries Act* is provided.

**Designated facility**

"designated facility" means

a) a children's camp,

b) a delivery agent care facility,

c) a health care facility,

d) a school or private school,

e) a social care facility, or

f) a university, a college of applied arts and technology, or an institution with authority to grant degrees.

**Director**

**The label "Director" as it is used in regulations, does not always apply to the same person. For the purposes of the Drinking-Water Systems Regulation, the appointed Director varies according to different issues discussed in the Regulation, as indicated below.**

| ISSUE | APPOINTED DIRECTOR |
|---|---|
| Trained Person, Certified Operator & Water Quality Analyst (section 1) | Human Resources Branch |
| Written Notification – Warning Notices for systems and users without electricity, etc. (section 8 (1) (d)) | Environmental Assessment and Approvals Branch |
| Submission of Annual Reports (section 11) | Environmental Monitoring and Reporting Branch |
| Written Notification – Intentions Regarding Treatment Equipment (Schedule 2-10 (1)) | Environmental Assessment and Approvals Branch |
| Submission of laboratory reports on results of water sample analyses (Schedule 6, section 6-9 (3)) | Environmental Monitoring and Reporting Branch |
| Submission of notice of the identity of the lab carrying out analyses on water samples (Schedule 6, section 6-9 (4)) | Laboratory Services Branch |
| Submission of notice regarding your intention to reduce the frequency of sampling (Schedule 11 and 12) | Laboratory Services Branch |
| - Determination of equivalent laboratory testing methods and equipment (Schedule 6)<br>- Determination of testing proficiency for health-related parameters (Schedule 6)<br>- Determination of testing proficiency for radiological parameters (Schedule 6) | Laboratory Services Branch |
| Written Notice - Engineering Evaluation Report (Schedule 21, section 21-7 (1)) | Environmental Assessment and Approvals Branch |

**Distribution sample**

"distribution sample" means, with respect to a drinking-water system, a water sample that is taken, in the drinking-water system's distribution system or in plumbing that is connected to the drinking-water system, from a point significantly beyond the point at which drinking water enters the distribution system or plumbing.

**Distribution system**

"distribution system" means the part of a drinking-water system that is used in the distribution, storage or supply of water and that is not part of a treatment system.

**Drinking-water**

"drinking-water" means,

a) water intended for human consumption, or

b) water that is required by an act, regulation, order, municipal by-law or other document issued under the authority of an act,

   i. to be potable,

   ii. or to meet or exceed the requirements of the prescribed drinking-water quality standards.

**Drinking-water system**

"drinking-water system" means a system of works, excluding plumbing, that is established for the purpose of providing users of the system with drinking-water and that includes,

a) any thing used for the collection, production, treatment, storage, supply or distribution of water,

b) any thing related to the management of residue from the treatment process or the management of the discharge of a substance into the natural environment from the treatment system, and

c) a well or intake that serves as the source or entry point of raw water supply for the system.

***E. Coli***

See "coliforms."

**Fecal coliforms**

See "coliforms."

**Free chlorine residual**

See "chlorine residual."

**Ground water**

"ground water" means water located in subsurface aquifer(s) where the aquifer overburden and soil act as an effective filter that removes micro-organisms and other particles by straining and antagonistic effect, to a level where the water supply may already be potable but disinfection is required as an additional health risk barrier.

**Health Care Facility**

"health care facility" means a facility that provides overnight accommodation and that is,

a) a hospital within the meaning of the *Public Hospitals Act* or the *Community Psychiatric Hospitals Act*,

b) a private hospital within the meaning of the *Private Hospitals Act*,

c) a psychiatric facility within the meaning of the *Mental Health Act*,

d) a nursing home within the meaning of the *Nursing Homes Act*,

e) a home within the meaning of the *Homes for the Aged and Rest Homes Act*,

f) an approved charitable institution within the meaning of the *Charitable Institutions Act* that is approved under section 3 of that Act as,

   i. a halfway house where rehabilitative residential group care may be provided for adult persons,

   ii. a home for the aged, or

iii. a home where residential group care may be provided for handicapped or convalescent adult persons,

g) a cancer centre established by the Ontario Cancer Treatment and Research Foundation under the *Cancer Act*,

h) a home for special care within the meaning of the *Homes for Special Care Act*,

i) an approved home within the meaning of the *Mental Hospitals Act*,

j) a residence for seniors or retired persons, or any other similar residence, where attainment of a mature age is a factor in being accepted for occupancy,

k) a nursing station, health centre, clinic or other facility that receives funding through the Ministry of Health and Long-Term Care's Underserviced Area Program, or

l) a facility owned or leased by a person who receives funding from the Ministry of Health and Long-Term Care for one or more of the following health care support services that are provided to or are available to residents of the facility:

i. a residential treatment services program,

ii. a withdrawal management services program,

iii. a dedicated supportive housing project.

**Heterotrophic plate count**

The "heterotrophic plate count" (HPC) is a procedure for estimating general bacteria population (i.e., the number of live heterotrophic bacteria) in water samples. Heterotrophic bacteria are those that are unable to synthesize their own food and are dependent on complex organic substances for nutrition. The HPC test can provide useful information about deteriorating water quality and also provides supporting data on the significance of coliform test results. The HPC test may be performed using the spread plate, pour plate or membrane filtration method.

**Infiltration gallery**

"infiltration gallery" means a subsurface ground water collection system constructed with open-jointed or perforated pipes that discharge collected water into a watertight chamber.

**Interested Authority**

"interested authority" means,

a) with respect to a delivery agent care facility, the delivery agent designated under the *Ontario Works Act, 1997* or the *Day Nurseries Act* for the geographic area in which the facility is located, or any successor of that delivery agent,

b) with respect to a health care facility, the Ministry of Health and Long-Term Care, or any successor of that ministry,

c) with respect to a school, the Ministry of Education, or any successor of that ministry,

d) with respect to a social care facility, the Ministry of Community, Family and Children's Services, or any successor of that ministry, or

e) with respect to a university, a college of applied arts and technology, or an institution with authority to grant degrees, the Ministry of Training, Colleges and Universities, or any successor of that ministry.

**Interim Maximum Acceptable Concentration (IMAC)**

The IMAC is a health-related standard established for parameters either when there are insufficient toxicological data to establish a MAC (see 'maximum acceptable concentration') with reasonable certainty, or when it is not feasible to establish a MAC at the desired level. The Ministry document titled "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines" (formerly known as the Ontario Drinking Water Standards) sets IMACs and MACs for a wide range of parameters. For health-related chemical parameters that must be tested under this Regulation, IMACs and MACs are listed in Schedule 1 of the Ontario Drinking-Water Quality Standards Regulation.

**Large Non-Municipal Non-Residential System**

"large non-municipal non-residential system" means a non-municipal drinking-water system that is capable of supplying drinking water at a rate of more than 2.9 litres per second and does not serve,

a) a major residential development, or

b) a trailer park or campground that has more than five service connections;

**Maximum Acceptable Concentration (MAC)**

The MAC is a health-related standard established for parameters which when present above a certain concentration, have known or suspected adverse health effects. The length of time the MAC can be exceeded without injury to health will depend on the nature and concentration of the parameter. The Ministry document titled "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines" (formerly known as the Ontario Drinking Water Standards)sets MACs and IMACs (see 'Interim Maximum Acceptable Concentration') for a wide range of parameters. For health-related chemical parameters that must be tested under this Regulation, MACs and IMACs are listed in Schedule 1 of the Ontario Drinking-Water Quality Standards Regulation.

**Medical Officer of Health**

"medical officer of health" with respect to a drinking-water system means the medical officer of health for the health unit in which the system is located or if none exists, the Chief Medical Officer of Health.

**Microbiological Parameter**

Contamination of water supplies by untreated sewage or poorly managed livestock manure runoff presents the greatest risk to public health from microorganisms associated with drinking water. To detect and protect against such organisms, the testing for 'microbiological parameters' and monitoring of chlorine residual is required (where chlorination is provided). Microbiological parameters in this Regulation include: total coliforms, *E. Coli*, fecal coliforms and general bacteria population. (See 'coliforms' and 'heterotrophic plate count.')

**Non-Municipal Drinking-Water System**

"non-municipal drinking-water system" means a drinking-water system that is not a municipal drinking-water system.

**Non-Municipal Seasonal Residential System**

"non-municipal seasonal residential system" means a non-municipal drinking-water system that is a seasonal system and serves,

a) a major residential development, or

b) a trailer park or campground that has more than five service connections.

**Non-municipal Year-Round Residential System**

"non-municipal year-round residential system" means a non-municipal drinking-water system that is a not a seasonal system and serves,

a) a major residential development, or

b) a trailer park or campground that has more than five service connections

**Ontario Drinking-Water Quality Standards**

"Ontario Drinking-Water Quality Standards" means Ontario Regulation 169/03 (Ontario Drinking-Water Quality Standards).

**Ontario Regulation 435/93 – Water Works and Sewage Works**

Made under the *Ontario Water Resources Act*, this Regulation is commonly referred to as 'The Training Regulation.' It classifies water and sewage works for the purpose of determining licensing requirements of operators.

**Ontario Regulation 459/00**

The *Safe Drinking Water Act, 2002* replaces the Drinking Water Protection Regulation (O. Reg. 459/00) and the Drinking Water Protection Regulation for Designated Facilities (O. Reg. 505/01). O. Reg. 459/00 was revoked on June 1, 2003.

Made under the OWRA, and part of Operation Clean Water, O. Reg. 459/00 is a comprehensive action plan to give Ontario residents the cleanest and safest drinking water possible. The Regulation, which puts into law the Ontario Drinking-Water Quality Standards (see 'Ontario Drinking-Water Quality Standards'), applies to water treatment and distribution systems that currently require approval under the OWRA, including municipal water works and other large systems.

**Ontario Regulation 505/01**

The *Safe Drinking Water Act, 2002* replaces the Drinking Water Protection Regulation (O. Reg. 459/00) and the Drinking Water Protection Regulation for Designated Facilities (O. Reg. 505/01). O. Reg. 505/01 was revoked on June 1, 2003.

Made under the OWRA, and part of Operation Clean Water, O. Reg. 505/01 is the government's province-wide effort to improve water quality and delivery in the province. This Regulation strengthens the protection of populations that are less resistant to contaminants in drinking water. It applies to schools, day nurseries, nursing and retirement homes and social and health care facilities in the broader public sector and private sector that have their own water supply system. Populations more sensitive to contaminants include: infants, children, pregnant women, the elderly, and those with compromised immune systems.

**Parameter**

"parameter" refers to a measurable or quantifiable characteristic or feature. This Regulation requires a number of microbiological and chemical parameters to be tested for in a water sample analysis (see 'chemical parameters' and 'microbiological parameters'). Schedule 1 of the Ontario Drinking-Water Quality Standards Regulation lists all of the chemical parameters that must be tested for, and specifies acceptable concentrations for those that are health-related. A description of individual parameters relevant to this Regulation can be found in the Ministry document titled "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines" (formerly known as the Ontario Drinking Water Standards).

**Point of entry treatment unit**

"point of entry treatment unit" means,

a) is designed to provide primary disinfection,
b) is installed in a drinking-water system at or near where water from the system enters a building or other structure, and
c) is connected to the plumbing associated with the building or other structure.

**Plumbing**

"plumbing" means a system of works,

a) that comprise a 'water system' for the purposes of the definition of "plumbing" in subsection 1(1) of the *Building Code Act, 1992,* other than equipment installed in plumbing to treat water, and
b) that are connected to a drinking-water system.

**Primary Disinfection**

"primary disinfection" means a process or series of processes intended to remove or inactivate human pathogens such as viruses, bacteria and protozoa in water.

**Private Residence**

"private residence" means a dwelling place occupied for an extended period of time by the same persons, if,

a) the residents have a reasonable expectation of privacy,
b) food preparation, personal hygiene, and sleeping accommodations are not communal in nature, and
c) any use of the dwelling place by a resident for a home occupation, trade, business, profession or craft is secondary to the use of the dwelling place as a residence and does not use more than 25 per cent of the indoor floor area.

***Procedure for Corrective Action for Systems Not Currently Using Chlorine***

*"Procedure for Corrective Action for Systems Not Currently Using Chlorine"* means the document of that name, originally dated April 16, 2003, published by and available from the Ministry, as amended from time to time.

***Procedure for Disinfection of Drinking Water in Ontario***

*"Procedure for Disinfection of Drinking Water in Ontario"* means the document of that name, originally dated April 16, 2003 and amended June 1, 2003, published by and available from the Ministry, as amended from time to time.

**Professional engineer**

A "professional engineer" means a professional engineer as defined in the *Professional Engineers Act.*

**Professional hydrogeologist**

A "professional hydrogeologist" means a hydrogeologist who is a member of the Association of Professional Geoscientists of Ontario.

**Provincial officer**

A "provincial officer" is a peace officer who has been granted the authority under the SDWA to enforce the provisions of the Regulation. The authority given under the Act allows the officer to investigate offences and prosecute any person whom the provincial officer reasonably believes is guilty of an offence under the Act. Under Regulation 170/03, provincial officers are given the authority to post warning notices, as required, if the owner of the water treatment or distribution facility fails to do so.

**Public facility**

"public facility" means,

a) food premises, as defined in the *Health Protection and Promotion Act,*

b) a place that operates primarily for the purpose of providing overnight accommodation to the travelling public,

c) a trailer park or campground,

d) a marina,

e) a church, mosque, synagogue, temple or other place of worship,

f) a recreational camp,

g) a recreational or athletic facility,

h) any place, other than a private residence, where a service club or fraternal organization meets on a regular basis, or

i) any place where the general public has access to a washroom, drinking water fountain or shower; but does not include a designated facility.

**Public health inspector**

"public health inspector" means a public health inspector of a board of health, certified by the Canadian Institute of Public Health Inspectors.

**Raw water**

"raw water" means water that is in a drinking-water system or in plumbing that has not been treated in accordance with,

a) the prescribed standards and requirements that apply to the system, or

b) such additional treatment requirements that are imposed by the license or approval for the system, if the system is licensed or approved under this Act.

**Raw water supply**

"raw water supply" means water outside a drinking-water system that is a source of water for the system.

**Resample and test**

"resample and test" means,

a) with respect to corrective action that arises from the test of a water sample for a microbiological parameter,
   i. take a set of water samples, at approximately the same time, with,
      A. at least one sample from the same location as the sample that gave rise to the corrective action,
      B. at least one sample from a location that is a significant distance upstream from the location described in sub-subclause (A), if that is reasonably possible, and
      C. at least one sample from a location that is a significant distance downstream from the location described in sub-subclause (A), if that is reasonably possible, and
   ii. conduct, on the samples taken under subclause (i), the same test that gave rise to the corrective action; or

b) with respect to corrective action that arises from the test of a water sample for a parameter that is not a microbiological parameter,
   i. take a water sample from the same location as the sample that gave rise to the corrective action, and
   ii. conduct, on the sample taken under subclause (i), the same test that gave rise to the corrective action

**School**

"school" or "private school" means a school or private school as defined in the *Education Act*.

**Seasonal System**

"seasonal system" means a drinking-water system that,

a) does not operate for at least 60 consecutive days in every calendar year, or

b) does not operate for at least 60 consecutive days in every period that begins on April 1 in one year and ends on March 31 in the following year.

**Secondary disinfection**

"secondary disinfection" means a process or series of processes intended to provide and maintain a disinfectant residual in a drinking-water system's distribution system, and in plumbing connected to the distribution system, for the purposes of,

a) protecting water from microbiological re-contamination,

b) reducing bacterial regrowth,

c) controlling biofilm formation, and

d) serving as an indicator of distribution system integrity,

and includes the use of disinfectant residuals from primary disinfection to provide and maintain a disinfectant residual in a drinking-water system's distribution system for the purposes described in clauses (a) to (d).

**Service Connection**

"service connection" means,

a) a point where a drinking-water system connects to plumbing, or

b) in a trailer park or campground, a fixture that allows a trailer or other vehicle to connect to the trailer park's or campground's drinking-water system.

**Service Pipe**

"service pipe" means the pipe portion of a drinking-water system that extends from a watermain to the property line of a property serviced by the watermain.

**Small Non-Municipal Non-Residential System**

"small non-municipal non-residential system" means a non-municipal drinking-water system that is not capable of supplying drinking water at a rate of more than 2.9 litres per second, serves a designated facility or public facility and does not serve,

a) a major residential development, or

b) a trailer park or campground that has more than five service connections.

**Social Care Facility**

"social care facility" means,

a) a facility designated by the regulations under the *Developmental Services Act* as a facility to which that Act applies,

b) a residence licensed as a children's residence under the *Child and Family Services Act,*

c) a facility where child development services, child treatment services, child welfare services, community support services or young offenders services, within the meaning of the *Child and Family Services Act*, are provided, unless the facility is located in a private residence,

d) a facility where child and family intervention services, within the meaning of Regulation 70 of the Revised Regulations of Ontario, 1990 (General) under the *Child and Family Services Act*, are provided, unless the facility is located in a private residence,

e) a place where an emergency shelter service that receives funding under the *Ministry of Community and Social Services Act* is provided, unless the place is located in a private residence,

f) a day nursery,

g) an Ontario Early Years Centre or a satellite program of the Ontario Early Years Centre that receives funding under the *Ministry of Community and Social Services Act,*

h) a sheltered workshop that receives funding under the *Developmental Services Act* or the *Ministry of Community and Social Services Act,*

i) a place where a supported employment program that receives funding under the *Developmental Services Act* or the *Ministry of Community and Social Services Act* is provided,

j) a place where an adults' community support service that receives funding under the *Developmental Services Act* is provided, unless the place is located in a private residence,

k) a place where an employment preparation, training and job placement program that receives funding under the *Developmental Services Act* or the *Ontario Disability Support Program Act, 1997* is provided,

l) a place where a violence against women program that receives funding under the *Ministry of Community and Social Services Act* is provided, unless the place is located in a private residence,

m) a place where an aboriginal healing and wellness program funded under the Aboriginal Healing and Wellness Strategy is provided.

**Surface water**

"surface water" means water bodies (lakes, wetlands, ponds – including dug-outs), water courses (rivers, streams, water-filled drainage ditches), infiltration trenches, and areas of seasonal wetlands.

**Total coliforms**

See "coliforms."

**Trained person**

"trained person" means,

a) a certified operator, or

b) a person who, in the preceding 36 months, successfully completed a course approved by the Director that relates to the operation and routine maintenance of drinking-water systems. Refer to **Chapter 15** in this kit for information on required and acceptable training.

**Turbidity**

"turbidity" is a measure of the clarity of water. 'Turbidity' or 'cloudiness' in water is caused by the presence of tiny suspended particles of matter such as clay, silt, spores, plankton and other microorganisms. Particles can shield microorganisms from being killed by disinfectants such as chlorine or ultra-violet light.